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PLEASE SEE
http://www.stn-international.de/stndatabases/details/dwpi_r.html <<<

=> D QUE

L41 2056 SEA FILE=WPIX ABB=ON PEEK OR (POLYETHER(W)KETONE# OR POLYETHER
(W)POLYKETONE) (3A) (AROM? OR ?ARYL?) OR POLYARYL(W)ETHER(W)KETON
E
L42 22 SEA FILE=WPIX ABB=ON L41(6A) (SPHER? OR PARTICLE?)
L43 7 SEA FILE=WPIX ABB=ON L42 AND (FIBER? OR FIBRE?)
L44 1 SEA FILE=WPIX ABB=ON L41 AND "MU.M"(3A) (10 OR 15 OR 20 OR 30
OR 35 OR 40 OR 50 OR 55 OR 45 OR 60 OR 65 OR 70 OR 75 OR 80 OR
85 OR 90 OR 95 OR 100)
L45 155 SEA FILE=WPIX ABB=ON L41 AND MICRON?(3A) (10 OR 15 OR 20 OR 30
OR 35 OR 40 OR 50 OR 55 OR 45 OR 60 OR 65 OR 70 OR 75 OR 80 OR
85 OR 90 OR 95 OR 100)
L46 9 SEA FILE=WPIX ABB=ON L42 AND L45
L47 54 SEA FILE=WPIX ABB=ON L45 AND (FIBER? OR FIBRE?)
L48 5 SEA FILE=WPIX ABB=ON L47 AND B29C?/IC
L49 22 SEA FILE=WPIX ABB=ON L41 AND (SPHER? OR PARTICLE?) (4A)MICRON?(
3A) (10 OR 15 OR 20 OR 30 OR 35 OR 40 OR 50 OR 55 OR 45 OR 60
OR 65 OR 70 OR 75 OR 80 OR 85 OR 90 OR 95 OR 100)
L50 6 SEA FILE=WPIX ABB=ON L47 AND L49
L51 23 SEA FILE=WPIX ABB=ON L43 OR L44 OR L46 OR L48 OR L50

=> D L51 FULL 1-23

L51 ANSWER 1 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 2007-019096 [03] WPIX

TI Retaining bracket for e.g. powder painting of article, has threads with specific thickness associated to adherent material layer having fluorinated polymer and comprising gripping unit, where layer has specific thickness

DC A88; P42; P43; P78

IN RIEU B

PA (FIME-N) FIME; (FIME-N) FIME SAS

CYC 36

PI EP 1726368 A1 20061129 (200703)* FR 11[4]

FR 2886173 A1 20061201 (200703) FR

ADT EP 1726368 A1 EP 2006-290858 20060524; FR 2886173 A1 FR 2005-5202 20050524

PRAI FR 2005-5202 20050524

IPCI B05B0013-02 [I,A]; B05D0005-08 [I,A]; B08B0017-00 [I,A]; B08B0003-02 [I,A]; B08B0007-00 [I,A]; B44D0003-16 [I,A]

AB EP 1726368 A1 UPAB: 20070112

NOVELTY - The bracket (1) has many threads (8) for priming of stripping, where bracket is coated with an anti-adherent material layer (6) loaded by mineral particles (7). The threads are arranged along a post of the framework and along a transversal bar and have thickness between 0.5 and 2 mm. The threads have ends associated to the layer having fluorinated polymer and comprises gripping unit e.g. ring, where the layer has thickness between 20 and 60 microns.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) a method for stripping a layer of painting deposited on a retaining bracket

(2) a stripping equipment for a retaining bracket

USE - Used in a stripping field, in an industrial scale, for retaining a part for treatment with painting e.g. powder painting, liquid painting of an article.

ADVANTAGE - The thickness of the anti-adherent layer is between 20 and 60 microns so as to avoid the layer of the paint to be adhered to the bracket while only using less quantity of anti-adherent material, and hence limiting the cost of the bracket. The fluorinated polymers of anti-adherent material ensure anti-adherent properties for paintings which are by nature very adherent. The polymers are compatible with the electrostatic method that is used for the application of the painting and are mechanically resistant to resist the stripping method. The thickness of the threads is between 0.5 to 2 mm, thus avoiding the thread to be torn or stripped during the implementation of the painting and stripping operation. The gripping unit permits the operator to easily grip the thread and to pull below when the operator wishes to prime the stripping. The threads facilitate the priming of the stripping in a simple manner and reduce the time necessary for stripping in an efficient manner while consuming energy necessary for the operation.

DESCRIPTION OF DRAWINGS - The drawing shows a partially exploded schematic perspective view of a retaining bracket.

Retaining bracket (1)

Anti-adherent material layer (6)

Mineral particles (7)

Threads (8)

Painting layer (10)

TECH POLYMERS - The mineral particles are polyether ether ketone (PEEK). The anti-adherent material has a fluorinated polymer e.g. fluorinated ethylene propylene (FEP) and perfluoroalcoxy resin (PFA).

FS CPI; GMPI

MC CPI: A04-E10; A05-H07; A05-J10; A08-R08B; A12-H

AN 2006-778773 [79] WPIX

DNC C2006-241125 [79]

DNN N2006-601710 [79]

TI Cleaning system for electrostatic printing machine comprises abrading brush having outwardly extending **fibers** and abrasive particles attached to end or entire length of **fibers**

DC A89; G08; P84; S06

IN FACCI J S; LUNDY D A; MCCONVILLE P J; TURAN M J; WAGNER M P; WAYMAN W H

PA (XERO-C) XEROX CORP

CYC 1

PI US 20060222425 A1 20061005 (200679)* EN 22[18]

ADT US 20060222425 A1 US 2005-93108 20050329

PRAI US 2005-93108 20050329

IPCI G03G0021-00 [I,A]

AB US 20060222425 A1 UPAB: 20061208

NOVELTY - A cleaning system for cleaning an imaging surface moving in a process direction comprises an abrading brush (200) for uniformly abrading the imaging surface to remove laterally conductive deposits. The abrading brush includes a core defining a core length and having **fibers** extending outwardly. The **fibers** include abrasive particles attached to the end or the entire length of the **fibers**.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for an electrostatic printing machine having a cleaning system.

USE - For cleaning an imaging surface of an electrostatic printing machine (claimed).

ADVANTAGE - Accelerated lateral charge migration (LCM) testing of the abrasive brush shows a greater than 10x life extension.

DESCRIPTION OF DRAWINGS - The figure shows a schematic elevational view of a cleaning station.

Brush (200)

Primary cleaner component (210)

Photoreceptor belt (410)

TECH CERAMICS AND GLASS - Preferred Materials: The abrasive particles are silicon carbide, aluminum oxide, cerium oxide, iron oxide, cubic boron nitride, garnet, silica, glass, or zirconia.

MECHANICAL ENGINEERING - Preferred Components: The abrading brush includes **fibers** without abrasive particles attached to the end of the **fibers**. A primary cleaner is positioned upstream in the process direction of the abrading brush for removing residue toner particles from the imaging surface. The abrading brush includes a region extending along the core having **fibers** including attached abrasive particles and a second region extending along the core having **fibers** without attached abrasive particles. The **fibers** are conductive **fibers**. A power supply biases the conductive **fibers**. It applies an alternating current (AC) bias sufficient to generate corona in the brush-photoreceptor nip at the ends of the conductive **fibers**. It applies an AC bias at a frequency of 100 Hz - 100 kHz and a voltage of 1-5 kV peak-peak. The cleaning device is in a housing separate from the abrading brush. The abrading brush is rotated 100-4000 rpm. Preferred Dimensions: The region is a spiral region having a width of 1-50 mm. The **fibers** are 1-30 deniers per **fiber** in diameter and 3-20 mm in length. The abrasive particles are 0.2-15 microns in size.

POLYMERS - Preferred Materials: The **fibers** are conductive or insulating synthetic **fibers** including styrene-acrylate, acrylic, nylon, polyethylene, polypropylene, polyester, polystyrene, rayon, polyethylethylketone (PEEK), polyvinylchloride, Teflon(RTM: PTFE), carbon **fiber**, or natural **fibers** including tampico, horsehair, palmetto, or palmyra.

FS CPI; GMPI; EPI

MC CPI: A12-L05C1; G06-G08E
EPI: S06-A10

L51 ANSWER 3 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 2006-778772 [79] WPIX

DNC C2006-241124 [79]

DNN N2006-601709 [79]

TI Cleaning system for electrostatic printing machine comprises cleaning device for cleaning debris from imaging surface, alternating current bias component adjacent imaging surface and power supply for biasing component to generate corona

DC A89; G08; P84; S06

IN FACCI J S; LUNDY D A; MCCONVILLE P J; TURAN M J; WAGNER M P; WAYMAN W H

PA (XERO-C) XEROX CORP

CYC 1

PI US 20060222424 A1 20061005 (200679)* EN 22[18]

ADT US 20060222424 A1 US 2005-93110 20050329

PRAI US 2005-93110 20050329

IPCI G03G0021-00 [I,A]

AB US 20060222424 A1 UPAB: 20061208

NOVELTY - A cleaning system comprises a cleaning device for cleaning debris from the imaging surface; an alternating current (AC) bias component adjacent the imaging surface and positioned downstream in the process direction from the cleaning device; and a power supply for biasing the AC bias component to generate corona that contacts the imaging surface to degrade laterally conductive deposits on the imaging surface that lead to lateral charge migration (LCM).

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for an electrostatic printing machine having a cleaning system.

USE - For use in an electrostatic printing machine (claimed), preferably for removing semi-conductive contaminants, e.g. laterally conductive films, on a photoreceptor.

ADVANTAGE - The AC-biased abrasive brush meets the goal of 10x life extension in accelerated LCM tests.

DESCRIPTION OF DRAWINGS - The figure shows a schematic elevational view of a cleaning station.

Brush (200)

Primary cleaner component (210)

Photoreceptor belt (410)

TECH CERAMICS AND GLASS - Preferred Materials: The abrasive particles are silicon carbide, aluminum oxide, cerium oxide, iron oxide, cubic boron nitride, garnet, silica, glass, or zirconia.

MECHANICAL ENGINEERING - Preferred Components: The cleaning device includes an abrading brush (200) adjacent the cleaning device for uniformly abrading the imaging surface to remove laterally conductive deposits that lead to lateral charge migration. The abrading brush includes core defining a core length and having fibers extending outwardly and attached abrasive particles. It includes a region of conductive fibers without abrasive particles attached to the end of the fibers. The power supply applies an AC bias at a frequency of 100 Hz - 100 kHz and a voltage of 1-5 kV peak-peak. Preferred Dimensions: The fibers are 1-30 deniers per fiber in diameter and 3-20 mm in length. The abrasive particles are 0.2-15 microns in size.

POLYMERS - Preferred Materials: The fibers are conductive or insulating synthetic fibers including styrene-acrylate, acrylic, nylon, polyethylene, polypropylene, polyester, polystyrene, rayon, polyethylethylketone (PEEK), polyvinylchloride, Teflon(RTM: PTFE), carbon fiber, or natural fibers including tampico, horsehair, palmetto, or palmyra.

FS CPI; GMPI; EPI
 MC CPI: A12-L05C1; G06-G08E
 EPI: S06-A10

L51 ANSWER 4 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
 AN 2006-465174 [48] WPIX
 DNC C2006-146363 [48]
 TI Polymer powder, useful in layerwise working procedure and for preparing molded articles, which are useful in: e.g. air and space industry, automobile and machine components and medical technology, comprises polyarylene ether ketone powder
 DC A26; A84; A86; A95; P53; P73
 IN GREBE M; KREIDLER P; MONSHEIMER S; RICHTER A
 PA (DEGS-C) DEGUSSA AG
 CYC 42

PI DE 102004062761 A1 20060622 (200648)* DE 15[0]
 CA 2530762 A1 20060621 (200648) EN
 EP 1674497 A1 20060628 (200648) DE
 US 20060134419 A1 20060622 (200648) EN
 NO 2005006075 A 20060622 (200651) NO
 CN 1827689 A 20060906 (200680) ZH C08L071-00
 AU 2005246985 A1 20060706 (200707) EN
 JP 2007039631 A 20070215 (200715) JA 18
 ADT DE 102004062761 A1 DE 2004-102004062761 20041221; EP 1674497 A1 EP 2005-110112 20051028; US 20060134419 A1 US 2005-293360 20051205; CA 2530762 A1 CA 2005-2530762 20051219; CN 1827689 A CN 2005-10129697 20051220; NO 2005006075 A NO 2005-6075 20051220; AU 2005246985 A1 AU 2005-246985 20051221; JP 2007039631 A JP 2005-366594 20051220
 PRAI DE 2004-102004062761 20041221
 IPCI B22F0003-10 [I,A]; B22F0003-10 [I,C]; B29C0067-00 [I,A]; B29C0067-02 [I,C]; B29C0067-04 [I,A]; B32B0015-02 [I,A]; B32B0015-02 [I,C]; C08G0065-00 [I,C]; C08G0065-00 [I,A]; C08G0065-00 [I,C]; C08G0065-32 [I,A]; C08G0065-40 [I,A]; C08G0008-00 [I,C]; C08G0008-02 [I,A]; C08J0003-12 [I,A]; C08J0003-12 [I,C]; C08J0003-12 [I,A]; C08J0003-28 [I,A]; C08J0005-00 [I,A]; C08J0005-00 [I,C]; C08J0005-00 [I,A]; C08J0005-12 [I,A]; C08K0003-00 [I,C]; C08K0003-04 [I,A]; C08K0005-00 [I,C]; C08K0005-3492 [I,A]; C08K0007-00 [I,C]; C08K0007-06 [I,A]; C08L0071-00 [I,C]; C08L0071-00 [I,A]; C08L0071-00 [I,C]; C08L0071-10 [I,A]; C08L0071-12 [I,A]; B29C0067-00 [I,C]; C08K0003-00 [I,C]; C08K0003-04 [I,A]; C08L0071-12 [I,A]

AB DE 102004062761 A1 UPAB: 20060727
 NOVELTY - Polymer powder (I), useful in layerwise working procedure, where selective ranges of the respective powder layer is melted by electromagnetic energy, comprises polyarylene ether ketone (PAEK) powder and has a BET surface of 1-60 m²/g.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the preparation of (I); #a method for preparing molded articles, by a layerwise working procedure, comprising melting the selective ranges of the respective polymer powder layer by adding electromagnetic energy; #molded articles, prepared by the method, comprising a polymer of polyarylene ether ketone.

USE - (I) is useful in layerwise working procedure. (I) is useful for preparing molded articles, which are useful in: air and space industry, automobile and machine components, medical technology, sport and electronic industries, household ware industry or lifestyle (all claimed).

ADVANTAGE - (I) is prepared by a simple preparative method. The molded articles prepared using (I) have improved thermostability and mechanical characteristics.

TECH POLYMERS - Preparation (Claimed): Preparation of (I) comprises mixing at least one polymer powder with an absorber. Preferred Components: The BET

surface of (I) is 5-45 (preferably 15-40) m²/g. (I) comprises at least one polymer: polyether ether ketone, polyether ketone, polyether ketone ketone or polyetherether ketone ketone. The average grain diameter of (I) is 30-150 (preferably 48-100) microns. The solution viscosity of (I) in 96% sulfuric acid according to EN ISO 1628-1 and/or DIN EN ISO 307 is 0.2-1.3 (preferably 0.5-1.1). In (I), at least one component, prepared using (I), exhibits a solution viscosity in 96% sulfuric acid according to EN ISO 1628-1 and/or DIN EN ISO 307, which is higher or equal than the solution viscosity of the used powders. (I) additionally consists of at least one additive, filler, pigment and/or absorber. The additive is trickling agent and the absorber comprises colorants, dyes and pigments. The absorber has soot, copper hydroxide phosphate, charcoal, graphite, carbon fibers, chalk or interference pigments as further components. The absorber comprises flame protection agent based on phosphorus or melamine cyanurate. The powdery absorber component of (I) has an average particle size of 0.001-50 microns. (I) comprises 0.01-30 (preferably 0.4-10) wt.% of the absorber related to the sum of the polymers present in (I). (I) comprises a mixture of soot particles (which are hydrophilized or hydrophobicized) and polymer particles. (I) comprises glass particle and/or aluminum gravel as fillers. The polymer in the molded article is at least one polymer: polyetherether ketone, polyether ketone, polyether ketone ketone or polyetherether ketone ketone. The molded articles comprise 0.01-30 wt.% of absorber, related to the sum of the present polymers, dye, colorants and pigments. The molded articles comprise soot, copper hydroxide phosphate, charcoal, graphite, carbon fibers, chalk, interference pigments and flame protection agent based on phosphorus or melamine cyanurate; fillers and/or additives. Preferred Process: In the preparation of molded articles, the selectivity is reached by inhibitors, susceptors, absorbers or masks. The molded articles are prepared by selective laser-internals of (I) and for preparing the molded articles, infrared heating or microwave generator is used to melt (I).

ABEX EXAMPLE - Polyetheretherketone (PEEK) particles having BET-surface of 50 m²/g and an average grain diameter of 500 microns was grounded with help of cryogen working pinned disc mill. The PEEK particles were provided into a grinding room and cooled with liquid nitrogen at -50degreesC. In the grinding room, the PEEK-particles were grounded by rotating pin disc mill at 220 m/s to obtain micronized product with a portion of particles (30 wt.%) less than 100 microns. The micronized PEEK-particle was fractioned with cyclone with the help of alpine air jet filter to obtain polyarylene ether ketone with particle diameter (d10) of 16.7 microns, d50 of 52.6 microns and d90 of 113.8 microns.

FS CPI; GMPI

MC CPI: A05-J10; A11-A02A; A11-A04; A11-B01; A12-S09A

L51 ANSWER 5 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 2006-447226 [46] WPIX

DNC C2006-140376 [46]

TI Preparation of polyarylene ether ketone-powders, useful for coating or preparing composites or shaped parts, comprises grinding a porous polyarylene ether ketone

DC A26; A82; G02

IN BIERHAUS C; CHRISTOPH W; KREIDLER P; RENNERS H; RICHTER A; TEMME H; BILLHAUS C; CHRISTOPHER W; KREDLER P; RUNAS H; TENM H

PA (DEGS-C) DEGUSSA AG

CYC 111

PI DE 102004062762 A1 20060622 (200646)* DE 6[0]

WO 2006067017 A1 20060629 (200646) DE

CN 1800242 A 20060712 (200674) ZH

C08J003-12

ADT DE 102004062762 A1 DE 2004-102004062762 20041221; WO 2006067017 A1 WO

2005-EP56153 20051122; CN 1800242 A CN 2005-10136902 20051220

PRAI DE 2004-102004062762 20041221

IPCI C08G0065-00 [I,C]; C08G0065-40 [I,A]; C08J0003-12 [I,A]; C08J0003-12 [I,A]; C08J0005-04 [I,C]; C08J0005-06 [I,A]; C08J0005-12 [I,A]; C08L0071-00 [I,C]; C08L0071-00 [I,C]; C08L0071-10 [I,A]; C08L0071-12 [I,A]; C09D0171-00 [I,C]; C09D0171-10 [I,A]; C09D0005-00 [I,A]; C09D0005-46 [I,A]

AB DE 102004062762 A1 UPAB: 20060719

NOVELTY - Preparation of polyarylene ether ketone-powders (I) comprises grinding a porous polyarylene ether ketone with a BET-surface of greater than 1 m²/g.

DETAILED DESCRIPTION - Polyarylene ether ketone powder prepared by the above method.

USE - (I) is useful for coating or preparing composites or shaped parts (claimed).

ADVANTAGE - (I) is obtained in high yield by the method and the method is simple.

TECH POLYMERS - Preferred Process: The process of grinding is carried out at below 0degreesC. The grounded product is subjected to sizing or sieving. The obtained polyarylene ether ketone powder has an average particle diameter of 1-300 microns and a viscosity coefficient of 20-150 cm³/g. The polyarylene ether ketone is a polyetheretherketone (PEEK), polyether ketone (PEK), polyether ketone ketone (PEKK) or polyether ether ketone ketone (PEKKK). (I) contains added inorganic pigments or processing additives.

ABEX EXAMPLE - Polyetheretherketone (PEEK) particles having BET-surface of 50 m²/g and an average grain diameter of 500 microns was grounded with help of cryogen working pinned disc mill. The PEEK particles were provided into a grinding room and cooled with liquid nitrogen at -50degreesC. In the grinding room, the PEEK-particles were grounded by rotating pin disc mill at 220 m/s to obtain micronized product with a portion of particles (30 wt.%) less than 100 microns. The micronized PEEK-particle was fractioned with cyclone with the help of alpine air jet filter to obtain polyarylene ether ketone with particle diameter (d10) of 16.7 microns, d50 of 52.6 microns and d90 of 113.8 microns.

FS CPI

MC CPI: A11-A04; A12-B01V; G02-A05

L51 ANSWER 6 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 2006-001048 [01] WPIX

DNC C2006-000480 [01]

DNN N2006-001038 [01]

TI Fiber composite roll cover for machines processing flat materials comprises a compound whose composition varies in different areas

DC A32; A88; F09; Q62

PA (VOIJ-C) VOITH PAPER PATENT GMBH

CYC 36

PI DE 102004025116 A1 20051208 (200601)* DE 12[3] D21G001-02

EP 1612329 A1 20060104 (200603) DE

ADT DE 102004025116 A1 DE 2004-102004025116 20040521; EP 1612329 A1 EP 2005-103508 20050428

PRAI DE 2004-102004025116 20040521

IC ICM D21G001-02

ICS B29C045-14; B29C070-30; F16C013-00

IPCI D21F0003-02 [I,C]; D21F0003-08 [I,A]; D21G0001-00 [I,C]; D21G0001-02 [I,A]

AB DE 102004025116 A1 UPAB: 20060125

NOVELTY - The cover(8) material is based on fibers(5) in a matrix(6) and the compound composition continuously varies depending on the area of the roll surface(14) to which the compound is applied.

DETAILED DESCRIPTION - Fillers(9) of different types may also be

included in the composition and the latter and/or the **fiber**(5) content and/or matrix(6) type and/or filler may continuously vary. Composition may vary in the axial and/or radial(7) direction of the roll body(4) onto which the compound is applied. **Fiber** type, content and/or diameter and/or length distribution and/or orientation may be varied. At least one **fiber** type may comprise loose **fibers** of specific length distribution and/or contains **fibers** which are randomly embedded in the matrix. **Fibers** have a length distribution of 1-10mm, preferably 1-3mm and/or more preferably 3-10mm. The matrix can comprise one or more different resin types. Matrix composition can be altered by varying the mixing ratio of at least one resin and/or hardener. Fillers can be used to influence wear resistance and/or viscosity and/or surface tension and/or conductivity. Filler particle size can also be varied. An INDEPENDENT CLAIM is included for a process for manufacturing the claimed roll cover. A compound comprising **fibers** and a matrix is applied onto specific positions on the roll and the composition of matrix and **fibers** is varied according to the axial and/or radial position on the roll.. The same step is repeated at different positions on the roll.

USE - For covering rolls used in the processing of flat strip materials.

ADVANTAGE - Roll cover loading can be increased and cover properties change continuously rather than in steps which reduces delamination risk.

DESCRIPTION OF DRAWINGS - The drawing shows a cross-section through a roll and cover.

fibers (5)
matrix (6)
radial direction (7)
cover (8)
filler (9)
roll surface (14)

TECH INORGANIC CHEMISTRY - Preferred Materials: Wear reducing fillers(9) can be carbides, metals and oxides or **fiber** pulp based on carbon and/or aramid and/or glass with particle size of 1-1000, preferably 5-100 **microns**. Surface tension influencing fillers can be thermoplastics or ionic fillers.

ORGANIC CHEMISTRY - Preferred Materials: Wear reducing fillers(9) can be carbides, metals and oxides or **fiber** pulp based on carbon and/or aramid and/or glass with particle size of 1-1000, preferably 5-100 **microns**. Surface tension influencing fillers can be thermoplastics or ionic fillers.

POLYMERS - Preferred Materials: Resins(6) can be either elastomers and/or thermosetting resins such as epoxide, cyanate ester or phenolic and/or a thermoplastic, e.g. polypropylene, polyethylene, polyphenylene sulphide, polyetheretherketone.

TEXTILES AND PAPER - Preferred Materials: **Fibers**(5) can be either inorganic, e.g. glass, metal, ceramic or boron or organic, e.g. carbon and/or aramid and/or polypropylene and/or polyester and/or high performance thermoplastics such as PPS(polyphenylene sulphide), **PEEK**(polyetheretherketone) or PTFE(polytetrafluoroethylene).

FS CPI; GMPI

MC CPI: A11-B09A; A12-H11; F04-E

L51 ANSWER 7 OF 23 WPIX COPYRIGHT 2007

THE THOMSON CORP on STN

AN 2005-746981 [76] WPIX

CR 2005-648778

DNC C2005-227532 [76]

DNN N2005-616073 [76]

TI Manufacture of pre-impregnated product involves causing substrate moving

at linear speed to horizontally traverse first coating stage at which impregnation particles are caused to be deposited onto its first surface

DC A87; F06; P73
IN WERNER E
PA (PCCO-N) PC COMPOSITES LTD
CYC 107
PI WO 2005091715 A2 20051006 (200576)* EN 67[18] B32B000-00
ADT WO 2005091715 A2 WO 2005-IL337 20050324
PRAI US 2005-641907P 20050105
US 2004-809284 20040325
IC ICM B32B000-00
AB WO 2005091715 A2 UPAB: 20060125

NOVELTY - A pre-impregnated product is manufactured by causing a substrate (100) moving at a linear speed of greater than or equal to 100 m/minute to horizontally traverse a first coating stage at which impregnation particles are caused to be deposited onto its first surface.

DETAILED DESCRIPTION - Manufacture of a pre-impregnated product involves causing a substrate moving at a linear speed of greater than or equal to 100 m/minute to horizontally traverse a first coating stage at which impregnation particles are caused to be deposited onto its first surface; causing the substrate moving at a linear speed of greater than or equal to 100 m/minute to horizontally traverse a first heated pressing stage (222) at which the impregnation particles are caused to be impregnated into the substrate from the first surface; causing the substrate moving at a linear speed of greater than or equal to 100 m/minute to horizontally traverse a second coating stage at which impregnation particles are caused to be deposited onto a second surface; and causing the substrate moving at a linear speed of greater than or equal to 100 m/minute to horizontally traverse a second heated pressing stage at which the impregnation particles are caused to be impregnated into the substrate from the second surface. INDEPENDENT CLAIMS are also included for:

(A) an apparatus for manufacture of a pre-impregnated product comprising a substrate driver causing a substrate to move horizontally at a linear speed; first coating assembly, traversed by the substrate at a linear speed, operative to deposit a first heated pressing assembly, traversed by the substrate at a linear speed, operative to impregnate the impregnation particles into the substrate from the first surface; second coating assembly, traversed by the substrate at a linear speed, operative to deposit a second heated pressing assembly, traversed by said substrate at a linear speed of greater than or equal to 100 m/minute, operative to impregnate the impregnation particles into the substrate from said second surface;

(B) a pre-impregnated material comprising textile substrate; and an impregnation particle layer adhered to the textile substrate, where impregnation particle layer has a uniformity of thickness having a variation of less than 5% of its average thickness; and

(C) a laminate formed of layers of pre-impregnated material.

USE - For manufacture of a pre-impregnated product.

ADVANTAGE - The invented method provides high degree of uniformity of thickness of the impregnation particle layers, thus voids in the laminate are avoided and highly uniform laminate are realized.

DESCRIPTION OF DRAWINGS - The figure is an illustration of a system.

Substrate (100)
Nozzles (114)
Vanes (116)
Conduits (132)
Pressing stage (222)

TECH CERAMICS AND GLASS - Preferred Material: The fiber is made from carbon fiber, glass fiber or metal fiber.

METALLURGY - Preferred Material: The metal foil comprises aluminum or copper foil.

POLYMERS - Preferred Component: The impregnation particles comprise particles from thermoplastic material, thermosetting material, an epoxy, phenolic material, polyimide, chalk, talc, a ceramic material, glass material, organic pigments or inorganic pigments. Preferred Material: The thermoplastic and/or thermosetting material comprises **particles** from polypropylene, polyamide, polyphenylene sulphide, **PEEK**, PEKK, polybutylene terephthalate, PEI and PAI (sic).

TEXTILES AND PAPER - Preferred Material: The substrate is made from paper, cardboard, rubber, metal foil, woven material, nonwoven material, perforated material, non-perforated material, natural material, an organic material, tow formed of **fibers** or yarn formed of **fibers**

FS CPI; GMPI

MC CPI: A11-B05E; A12-B01; A12-G00G; A12-S08; F01-H06; F03-D; F03-E01; F05-A06B

L51 ANSWER 8 OF 23 WPIX COPYRIGHT 2007

THE THOMSON CORP on STN

AN 2005-732398 [75] WPIX

DNC C2005-223304 [75]

DNN N2005-602877 [75]

TI Powder for the production of spatial structure, i.e. molded body, contains **spherical particles of aromatic polyether ketone plastic**

DC A26; A81; M22; P53

IN HESSE P; PAUL T; WEISS R

PA (EOSE-N) EOS GMBH ELECTRO OPTICAL SYSTEMS; (TOYT-C) TOYOTA MOTORSPORT GMBH

CYC 107

PI US 20050207931 A1 20050922 (200575)* EN 13[8] B22F003-10

WO 2005090448 A1 20050929 (200575) DE C08J003-12

WO 2005090449 A1 20050929 (200575) DE C08J003-12

EP 1660566 A1 20060531 (200636) DE C08J003-12

DE 202005020596 U1 20060608 (200638) DE

ADT US 20050207931 A1 Cont of WO 2004-EP2965 20040322; US 20050207931 A1 US 2004-816171 20040402; WO 2005090448 A1 WO 2004-EP2965 20040321; EP 1660566 A1 EP 2005-728203 20050321; WO 2005090449 A1 WO 2005-EP2991 20050321; EP 1660566 A1 WO 2005-EP2991 20050321; DE 202005020596 U1 DE 2005-202005020596 20050321; DE 202005020596 U1 Application No WO 2005-EP2991 20050321

FDT EP 1660566 A1 Based on WO 2005090449 A

PRAI US ~~2004-816171~~ 20040402

WO 2004-EP2965 20040322

WO 2004-EP2965 20040321

IPCI B22F0003-00 [I,A]; B29C0067-00 [I,A]; C08G0065-40 [I,A]; C08G0067-00 [I,A]; C08J0003-12 [I,A]; C08L0077-00 [I,A]

IPCR B22F0003-10 [I,A]; B22F0003-10 [I,C]; C08G0065-00 [I,C]; C08G0065-40 [I,A]; C08G0067-00 [I,A]; C08G0067-00 [I,C]

AB US 20050207931 A1 UPAB: 20060125

NOVELTY - A powder comprises **spherical particles of an aromatic polyether ketone plastic**.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(1) a method for the production of a powder, comprising mixing a matrix micropowder (322) into a liquid phase to form a suspension where the particle size of the matrix micropowder is less than the particle size of the powder, spraying the suspension through a nozzle to form droplets comprising the matrix micropowder, and vaporizing or evaporating a liquid component from the droplets to form the powder in the form of spherical agglomerates (330);

(2) a method for producing a spatial structure comprising melting

the powder; and

(3) a molded body obtained by powder-based generative rapid prototyping of the powder.

USE - For the production of spatial structure, i.e. molded body (claimed).

ADVANTAGE - The inventive powder can produce molded bodies having improved mechanical properties.

DESCRIPTION OF DRAWINGS - The figure is a schematic representation of a method for the production of the powder.

Matrix micropowder (322)

Liquid phase (326)

Spherical agglomerates (330)

Droplets (332)

Stiffening and reinforcing fibers (340)

TECH CERAMICS AND GLASS - Preferred Component: At least one of the stiffening fibers or reinforcing fibers comprises at least one of glass fibers. The fibers are ceramic fibers.

INORGANIC CHEMISTRY - Preferred Material: The matrix material comprises a metallic material. Preferred Component: At least one of the stiffening fibers or reinforcing fibers comprises at least one of carbon fibers. The fibers are boron fibers.

ORGANIC CHEMISTRY - Preferred Material: The matrix material comprises a metallic material. Preferred Component: At least one of the stiffening fibers or reinforcing fibers comprises at least one of carbon fibers. The fibers are boron fibers.

POLYMERS - Preferred Component: The aromatic polyether ketone plastic is polyaryl ether

ketone plastic comprising polymerized units of

oxy-1,4-phenylene-oxy-1,4-phenylene-carbonyl-1,4-phenylene of formula (I).

The powder further comprises stiffening fiber(s) or reinforcing

fiber(s), and a matrix material in the form of spherical powder

particles. The matrix material comprises a thermoplastic material and a crosslinked polyamide. The crosslinked polyamide is PA11 or PA12.

Preferred Composition: The total amount of the stiffening and reinforcing fibers (340) is up to 25, preferably up to 10 vol.%. Preferred

Property: The particles are spherical. Preferred Dimension: The spherical particles have an average grain sized d50 of 20-150, preferably 40

-70 microns, or 10-100, preferably

10-80 microns. Preferred Method: The melting

includes powder-based generative rapid prototyping, selective laser sintering or laser melting.

FS CPI; GMPI

MC CPI: A05-H07; A05-J10; A08-R08B; A11-A04; A12-S09; M22-H03G

L51 ANSWER 9 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 2005-668251 [69] WPIX

DNC C2005-202771 [69]

TI Prepreg for aeronautical-navigation/space field, consists of sheet-like reinforced fiber material impregnated with thermoplastic resin, and has preset void fraction and variation of thickness

DC A17; A28; A95

IN IIZUKA Y

PA (TOHS-C) TOHO RAYON KK

CYC 1

PI JP 2005239843 A 20050908 (200569)* JA 10[1] C08J0005-24

ADT JP 2005239843 A JP 2004-50519 20040225

PRAI JP 2004-50519 20040225

IPCR C08J0005-24 [I,A]; C08J0005-24 [I,C]

AB JP 2005239843 A UPAB: 20051223

NOVELTY - A prepreg consists of a sheet-like reinforced fiber

material impregnated with a thermoplastic resin. The prepreg has void fraction of 1% or less and variation of thickness of 5% or less.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for the manufacture of the prepreg. A sheet-like reinforced **fiber** material is immersed in suspension of organic solvent chosen from alcohol, ketone and/or halocarbon, or mixed solvent of organic solvent and water dispersed with thermoplastic resin powder. The resin powder is adhered to reinforced **fiber** material and heated at 170-390degreesC, and resin powder is melted. The molten mixture is heat-pressurized in a heating-pressurization roller at a pressure of 3-10 Kg/cm and temperature of (Tg+15)-(Tg+100) (in degreesC), and resin is impregnated to the **fiber** material. Thus, the prepreg is manufactured.

USE - For aeronautical-navigation/space field.

ADVANTAGE - The prepreg has excellent uniformity, surface smoothness, heat resistance and mechanical characteristics.

DESCRIPTION OF DRAWINGS - The figure shows manufacture of the prepreg.

- reinforcement **fiber** material (1)
- suspension bath (2)
- guide roller (3)
- drying machine (4)
- heating zone (5)

TECH POLYMERS - Preferred Resin: The prepreg contains thermoplastic resin (10-70 wt.%). The thermoplastic resin is crystalline or non-crystalline thermoplastic resin having glass transition temperature of 150degreesC or more. The thermoplastic resin is polypropylene, polysulfone, polyether sulfone, **polyether ketone**, polyether ether ketone, **aromatic polyamide**, aromatic polyester, aromatic polycarbonate, polyether imide, polyarylene oxide, thermoplastic polyimide and/or polyamido imide.

Preferred Property: The thermoplastic resin powder has average **particle** diameter of 5-20 **microns**. The thermoplastic resin powder contains particles (10 volume%) of particle size less than or equal to 4 **microns**, **particles** (50 volume%) of **particle** size 8-15 **microns** and **particles** (90 volume%) of particle size less than or equal to 20 microns, measured by laser diffraction scattering method.

Preferred Composition: The suspension contains thermoplastic resin (1-50 wt.%).

ABEX EXAMPLE - PIXA-M (RTM: polyimide resin powder with a 10% particle size of 8 microns, 50% particle size of 12 microns and 90% particle size of 17 microns and glass transition temperature of 235degreesC) was dispersed in acetone, and 7% suspension was prepared. Toho Tenax IM600 (RTM: carbon fiber with a single fiber diameter of 5.0 microns) was immersed in the suspension for 30-60 seconds. The adhesion amount of resin in the carbon fiber was 35 plus minus 3 wt.%. The carbon fiber adhered with the resin was dried at 150degreesC for 1-5 minutes, and a prepreg was obtained. The obtained prepreg had void fraction of 0.7-0.9%, variation on thickness of 2.6% and excellent surface smoothness.

FS CPI

MC CPI: A11-B09C; A12-S08D3; A12-S08E; A12-T03

L51 ANSWER 10 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 2004-784461 [77] WPIX

DNC C2004-274504 [77]

DNN N2004-618312 [77]

TI Fuel cell has intermediate layer containing proton-acid group-containing cross-linked polymer having aromatic unit, and catalyst particle, between solid electrolyte film and diffusion electrode

DC A26; A32; A85; L03; P42; X16
 IN IKADO S; KUBO Y; KUROKI T; NAKAMURA S; OBATA T; OMI T; TAMAI S; YOSHITAKE T

PA (MITA-C) MITSUI CHEM INC; (NIDE-C) NEC CORP; (IKAD-I) IKADO S; (KUBO-I) KUBO Y; (KURO-I) KUROKI T; (NAKA-I) NAKAMURA S; (OBAT-I) OBATA T; (OMIT-I) OMI T; (TAMA-I) TAMAI S; (YOSH-I) YOSHITAKE T; (NIDE-C) NIPPON ELECTRIC CO

CYC 107

PI WO 2004091027 A1 20041021 (200477)* JA 44[2]

EP 1624513 A1 20060208 (200611) EN

TW 2004027127 A 20041201 (200612) ZH

H01M008-00

JP 2005505193 X 20060706 (200645) JA 26

KR 2005117583 A 20051214 (200652) KO

US 20060251951 A1 20061109 (200674) EN

CN 1799160 A 20060705 (200675) ZH

TW 242306 B1 20051021 (200681) ZH

H01M008-00

ADT WO 2004091027 A1 WO 2004-JP4125 20040324; CN 1799160 A CN 2004-80015238

20040324; EP 1624513 A1 EP 2004-723078 20040324; EP 1624513 A1 WO

2004-JP4125 20040324; JP 2005505193 X WO 2004-JP4125 20040324; KR

2005117583 A WO 2004-JP4125 20040324; US 20060251951 A1 WO 2004-JP4125

20040324; TW 2004027127 A TW 2004-109592 20040407; JP 2005505193 X JP

2005-505193 20040324; KR 2005117583 A KR 2005-719141 20051007; US

20060251951 A1 US 2006-552712 20060707; TW 242306 B1 TW 2004-109592

20040407

FDT EP 1624513 A1 Based on WO 2004091027 A; JP 2005505193 X Based on

WO 2004091027 A; KR 2005117583 A Based on WO 2004091027 A

PRAI JP 2003-105626 20030409

IC ICM H01M008-00; H01M008-02

ICS H01M004-86; H01M008-10

IPCI B05D0005-12 [I,A]; H01M0004-86 [I,A]; H01M0004-88 [I,A]; H01M0004-94

[I,A]; H01M0008-02 [I,A]; H01M0008-10 [I,A]; H01M0004-86 [I,A];

H01M0008-02 [I,A]; H01M0008-10 [I,A]

IPCR H01M0004-86 [I,A]; H01M0004-86 [I,C]; H01M0008-10 [I,A]; H01M0008-10 [I,C]

AB WO 2004091027 A1 UPAB: 20050707

NOVELTY - A fuel cell has solid electrolyte film (114) containing resin (1), interposed between pair of diffusion electrodes. Electrode has catalyst layer (112) containing resin (2) having proton-acid group, and catalyst, at porous base material (104). Intermediate layer (161) is formed between electrode(s) and film, and contains resin (3) having proton-acid group-containing cross-linked polymer having aromatic unit, and catalyst particle.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for manufacture of fuel cell. Pair of diffusion electrode is formed on both surfaces of solid electrolyte film, and pressurized or heated. The diffusion electrode and solid electrolyte film are integrated, and coating liquid containing resin (3) and catalyst particle is applied on surface(s) of solid electrolyte film to obtain fuel cell.

USE - For power generation.

ADVANTAGE - The fuel cell has excellent capability, reliability, battery characteristics, proton conductivity between electrode and solid electrolyte film, and adhesion between electrodes.

DESCRIPTION OF DRAWINGS - The figure shows a structure of fuel cell.

Fuel electrode (102)

Porous base material (104)

Catalyst layer (112)

Solid polymer electrolyte film (114)

Intermediate layer (161)

TECH POLYMERS - Preferred Resin: The resin (3) is a cross-linkable resin and contains repeating unit of formulae (1) and (2).

Ar1 = bivalent group containing aromatic ring coupled with 1-20C linear or

branched alkyl, hydrogen of aromatic ring is optionally substituted with alkyl, halogenated hydrocarbon or halogen
X, Y = proton-acid group chosen from sulfonic acid group, carboxylic acid group, phosphoric acid group and sulfonimide group or their metallic salts
x, y = 0 or more
x+y = 1 or more

The resin (1) is formed by cross-linking proton-acid group-containing cross-linkable **aromatic polyether ketone** for 5 times by heat or irradiation of electromagnetic wave.

Preferred Layer: The intermediate layer further contains resin (2) containing sulfonic-acid group-containing perfluoro carbon polymer compound.

Preferred Composition: The content rate of resin (3) in the surface touching solid electrolyte film of intermediate layer is higher than that of surface touching diffusion electrode of intermediate layer. The coating liquid further contains resin (2).

INORGANIC CHEMISTRY - Preferred Particle: The catalyst particle consists of catalyst metal supported by electroconductive particle.

ABEX EXAMPLE - 5,5'-carbonyl bis (2-fluorobenzene sulfonic-acid sodium) (in g) (4.22), 4,4'-difluoro benzophenone (2.18), 2,2-bis (3,5-dimethyl-4-hydroxyphenyl)propane (5.69) and potassium carbonate (3.46) were mixed and reacted at 160 degrees C for 14 hours. Dimethyl-sulfoxide (40 ml) and toluene (30 ml) were further added and stirred under nitrogen atmosphere. The mixture was heated at 130 degrees C for 2 hours, and generated water was removed. Toluene was distilled and viscous polymer solution was obtained. The solution was filtered, precipitated and dried at 160 degrees C for 4 hours to obtain polymer powder (10.39) with yield of 92%. Sulfonic acid sodium-containing aromatic polyether ketone powder (0.5) was dissolved in dimethyl sulfoxide (100 ml). A soluble polymer compound of formula (A) was obtained. Catalyst supported carbon particle and sulfonic-acid sodium-containing aromatic polyether ketone powder were dipped in sulfuric acid in the ratio of 1:2 and water was distilled. The resulting mixture was dried at 160 degrees C for 4 hours, and sulfonic acid group-containing aromatic polyether ketone solution obtained using mixed solvent of tetrahydrofuran and water, was mixed. An intermediate layer coating liquid was obtained, and contained 5-10 wt.% of polymer concentration. A solid electrolyte film was obtained using the sulfonic acid sodium-containing aromatic polyether ketone powder, and had thickness of 50 microns. An electrode having catalyst layer containing ketone powder and catalyst particle, and carbon paper as a porous base material, was manufactured. A fuel cell having intermediate layer between solid electrolyte film and electrode, was manufactured. The fuel cell had favorable electric current voltage characteristics. The reduction of output of fuel cell was 5% or less even when continuous operation was performed for 1000 hours.

FS CPI; GMPI; EPI

MC CPI: A05-J10; A08-D01; A11-B05; A12-E06; L03-E04A2; L03-E04B
EPI: X16-C01C; X16-E06A

L51 ANSWER 11 OF 23 WPIX COPYRIGHT 2007

THE THOMSON CORP on STN

AN 2003-260501 [26] WPIX

DNC C2003-068593 [26]

DNN N2003-206488 [26]

TI Bearing molding material for motor vehicle, consists of **spherical glass, aromatic polyether ketone** and carbon fiber

DC A88; Q62

IN MAEDA Y

PA (NIOD-C) NOK CORP

CYC 1

PI JP 2002323044 A 20021108 (200326)* JA 4[0] F16C033-20
ADT JP 2002323044 A JP 2001-127496 20010425
PRAI JP 2001-127496 20010425
IPCR C08J0005-16 [I,A]; C08J0005-16 [I,C]; C08K0007-00 [I,C]; C08K0007-06
[I,A]; C08K0007-20 [I,A]; C08L0071-00 [I,A]; C08L0071-00 [I,C];
F16C0033-04 [I,C]; F16C0033-20 [I,A]

AB JP 2002323044 A UPAB: 20050528

NOVELTY - A bearing molding material consists of 3-24 weight% of
spherical glass, 52-94 weight% of **aromatic**
polyether ketones and 3-24 weight% of **carbon fiber**

USE - For motor vehicle.

ADVANTAGE - The bearing molding material has high limiting PV value
and low coefficient of friction.

TECH POLYMERS - Preferred Composition: Alternately, the bearing molding
material consists of 3-24 weight% of **spherical glass**, 28-91 wt.%
of **aromatic polyether ketone**, 3-24 wt.% of
carbon fiber and 3-24 wt.% of fluorocarbon polymer.

ABEX EXAMPLE - (In weight%) PEEK 150P (polyether ether ketone) (60), HTA-C6-UH
(carbon fiber) (10), UB-47L (spherical glass) (20) and KTL 500F
(polytetrafluoroethylene) (10) were mixed and extruded to form a pellet.
The pellet was then molded to a resin board of thickness 2 mm. The resin
board had threshold PV value of 2.3 MPa.m/second and coefficient of
friction of 0.08 GPa.

FS CPI; GMPI

MC CPI: A05-J10; A12-H03; A12-S08C; A12-S08D3; A12-T04

L51 ANSWER 12 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 2000-425433 [37] WPIX

DNC C2000-129080 [37]

DNN N2000-317341 [37]

TI Composite bearing with resin layer incorporating PTFE dispersed as
particles in polyether ether ketone (PEEK), PTFE
particles having a molecular weight of 300,000 - 500,000

DC A14; A88; P73; Q62

IN KATO E; SAWANO K; SHIBAYAMA T

PA (DAME-C) DAIDO METAL CO LTD; (DAME-C) DAIDO METAL KOGYO KK

CYC 3

PI GB 2344624 A 20000614 (200037)* EN 23[9] F16C033-24

JP 2000169697 A 20000620 (200040) JA 6 C08L071-00

GB 2344624 B 20001115 (200060) EN F16C033-24

US 6332716 B1 20011225 (200206) EN C08L101-00

ADT GB 2344624 A GB 1999-28550 19991202; JP 2000169697 A JP 1998-348496
19981208; GB 2344624 B GB 1999-28550 19991202; US 6332716 B1 US
1999-453059 19991202

PRAI JP 1998-348496 19981208

IPCR B32B0027-00 [I,A]; B32B0027-00 [I,C]; B32B0027-30 [I,A]; B32B0027-30
[I,C]; C08L0071-00 [I,A]; C08L0071-00 [I,C]; F16C0033-04 [I,C];
F16C0033-20 [I,A]

AB GB 2344624 A UPAB: 20050411

NOVELTY - Polytetrafluoroethylene (PTFE) is dispersed in the form of
particles in a base resin consisting essentially of polyether ether ketone
(PEEK), with the proportion of PTFE in the resin layer from 0.1 to 50% by
weight, and the PTFE particles having a molecular weight of 300,000 to
500,000. The resulting resin layer is bonded to a backing metal to form a
composite bearing; the peel strength of the resin layer and the bonding
force between the backing metal and the resin layer is greater than
similar resins with PTFE particles of lower weight.

USE - As a bearing for a generator, or pump, which is subjected to
repeated stopping and starting. Also in bearings which require measurement

of counter electrolytic corrosion, where insulation is required to prevent electrolytic corrosion and where carbon fibers are added to conventional resin.

ADVANTAGE - Has good wear resistance, small coefficient of friction during starting, and excellent peeling strength of the resin layer and bonding force between the backing metal and the resin.

FS CPI; GMPI

MC CPI: A04-E08B; A05-J10; A07-A04F; A12-H03

L51 ANSWER 13 OF 23 WPIX COPYRIGHT 2007

THE THOMSON CORP on STN

AN 1999-442894 [37] WPIX

DNC C1999-130438 [37]

DNN N1999-330210 [37]

TI Ceramic-filled fluoropolymer composites used as an electrical substrate material, especially for microwave circuit boards

DC A14; A28; A60; A85; L02; L03; P73; V04

IN ALLEN D A; HORN A F; TRASKOS R R

PA (ROGR-C) ROGERS CORP

CYC 1

PI US 5922453 A 19990713 (199937)* EN 9[2] B32B027-04

ADT US 5922453 A US 1997-795857 19970206

PRAI US 1997-795857 19970206

IPCR C08K0003-00 [I,C]; C08K0003-22 [I,A]; C08L0027-00 [I,C]; C08L0027-18 [I,A]; C08L0071-00 [I,A]; C08L0071-00 [I,C]; H05K0001-02 [N,A]; H05K0001-02 [N,C]; H05K0001-03 [I,A]; H05K0001-03 [I,C]; H05K0001-16 [N,A]; H05K0001-16 [N,C]

AB US 5922453 A UPAB: 20060115

NOVELTY - An electrical substrate composite material comprises (a) a fluoropolymer matrix; (b) at least one particulate ceramic filler (greater than 30 volume%); and (c) a high temperature, high modulus, polymeric powder of median particle size 200 micron or less (2-30 volume%), and the composite has a flexural modulus of greater than 200,000 psi.

USE - Especially as the dielectric substrate of a microwave circuit board, optionally clad with a metal layer on one or both sides.

ADVANTAGE - The substrate material shows a high flexural modulus and good dimensional stability. Replacing the matrix polymer with the high temperature polymeric material increases the modulus by nearly an order of magnitude with only a minor increase in dielectric loss and no adverse effects on the other advantageous properties of the ceramic-filled fluoropolymer composites.

TECH POLYMERS - Preferred Composite: The composite has a tan delta value of less than 0.005. It comprises 5-40 vol.% of the matrix polymer, 40-65 vol.% of the filler and 5-30 vol.% of the high temperature polymeric powder (preferably 5-20 vol% of poly(ether ether ketone) (PEEK), a liquid crystalline polymer or polyetherimide). The composite may further comprise at least one metal layer on at least a part of its surface. The material shows a dimensional change on etch and bake of less than 1.5 mil/inch and has a dielectric constant of 3.0-20.0. A planar shape of the composite has a coefficient of thermal expansion in the X-Y plane of 11-20 ppm/degreesC. Preferred Components: The fluoropolymer is polytetrafluoroethylene, a copolymer of tetrafluoroethylene and a perfluoroalkyl vinyl ether, a copolymer of hexafluoropropylene and tetrafluoroethylene, poly(ethylene-co-chlorotrifluoroethylene), poly(chlorotrifluoroethylene), poly(ethylene-co-tetrafluoroethylene) or a mixture. The high temperature polymer powder is a liquid crystalline polymer, polyetherimide, polyethersulfone, thermoplastic or thermoset polyimide, polyketone, PEEK, poly(phenylene sulfide), polysulfone or a mixture (preferably a liquid crystalline polymer and/or PEEK).

INORGANIC CHEMISTRY - Preferred Components: The filler may have a hydrophobic coating (preferably of silane, titanate or zirconate) and comprises titanium dioxide, calcium, barium or strontium titanate, silica, corundum, wollastonite, fiberglass, Ba₂Ti₉O₂₀, glass spheres, quartz, boron or aluminium nitride, silicon carbide, beryllia, magnesia or a mixture. The filler may comprise a mixture of (i) at least one first ceramic material of dielectric constant greater than 30 (preferably titania or strontium, calcium or barium titanate) and (ii) at least one second ceramic material of dielectric constant less than 30 (preferably fused amorphous silica, micro-crystalline silica, glass beads, alumina, magnesium oxide or Ba₂Ti₉O₂₀). Preferred is a mixture of titania and silica present at 50-60 vol.% in the composite. The filler shows a dielectric loss of less than 0.005 at frequencies greater than 500 MHz. The surface metal layer is of copper.

ABEX EXAMPLE - The components of mixtures were mixed and processed using a 50 vol.% total solids casting mixture as disclosed in US5,312,576. Cast sheets were post-baked before lamination at 550degreesF for 8 hours to remove the volatile components of the PTFE dispersion. The high-temperature polymer was XYDAR LCP (RTM: liquid crystalline polymer, processing temperature 735 degrees F, flexural modulus 2×10^6 psi), which was cooled to liquid nitrogen temperature and hammer milled to a median particle size of 100 micron. The filler was silica containing titania at 2 vol.% of the composite volume. Composites were prepared comprising 55.5 vol.% filler, 10.0, 20.0 or 30.0 vol.% of the above powder and the balance of PTFE. The composites had a flexural modulus (psi) of 172.9, 214.3 and 438.3×10^3 respectively. Water absorption (%) was 0.12, 0.09 and 0.19 respectively, the dimensional stability (mil/inch) was -0.7, -0.2 and -0.5 respectively. K by the long stripline resonance method at 10 GHz was 3.06, 3.01 and 3.04 respectively and tan delta, by the same method, was 0.0011, 0.0012 and 0.0013 respectively. The sample with the highest loading of the above power showed an increase in tan delta of only 0.003 over the value for a control of RO3003 (RTM: 45.5 vol.% PTFE, 55.5 vol.% silica/titania filler).

FS CPI; GMPI; EPI

MC CPI: A04-E10; A08-R; A12-E07; L02-J02B; L03-H04E1; L03-H04E5
EPI: V04-R07L

L51 ANSWER 14 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 1996-260779 [27] WPIX

DNC C1996-082651 [27]

TI Modified PEEK membranes for e.g. ultrafiltration or micro-filtration - prepared from solution of PEEK and polyethylene terephthalate in sulphuric acid and methane sulphonic acid, with improved water flow rates, pressure stability and retention

DC A26; A88; J01

IN GROEBE A; HOPPERDIETZEL S; MUELLER M; POERSCH F; WEINBERG E

PA (REHA-C) REHAU & CO AG

CYC 7

PI DE 19511361 C1 19960605 (199627)* DE 9[1] B01D071-52

EP 737506 A1 19961016 (199646) DE 9[0] B01D071-52

ADT DE 19511361 C1 DE 1995-19511361 19950328; EP 737506 A1 EP 1996-101863 19960209

PRAI DE 1995-19511361 19950328

IPCR B01D0071-00 [I,C]; B01D0071-52 [I,A]

AB DE 19511361 C1 UPAB: 20060110

Preparation of polymer membranes based on poly(oxy-1,4-phenylene-oxy-1,4-phenylene-carbonyl-1,4-phenylene) polyetherether ketone (PEEK) cpds. of formula $-(O-p-C_6H_4-O-p-C_6H_4-CO-p-C_6H_4-)_n$ (I), comprises converting a homogeneous solution (L) comprising 5-20 weight% PEEK and 0.01-15 weight% polyethylene terephthalate (PET) in a mixture of 2-40%

sulphuric acid and 98-60% methane sulphonic acid, into membranes by standard techniques.

The polymer membranes prepared by this method are also claimed.

USE - The membranes are useful for ultra- or microfiltration (claimed).

ADVANTAGE - The PET modifies the morphological submicroscopic structure of the PEEK from fibrillar to globular units, increasing the water flow rate, pressure stability and retention of the membrane.

ABDT DE19511361

Preparation of polymer membranes based on poly(oxy-1,4-phenylene-oxy-1,4-phenylene-carbonyl-1,4-phenylene) polyetherether ketone (PEEK) cpds. of formula

-(O-p-C6H4-O-p-C6H4-CO-p-C6H4-)n (I),

comprises converting a homogeneous solution (L) comprising 5-20 weight% PEEK and 0.01-15 weight% polyethylene terephthalate (PET) in a mixture of 2-40% sulphuric acid and 98-60% methane sulphonic acid, into membranes by standard techniques.

The polymer membranes prepared by this method are also claimed.

USE

The membranes are useful for ultra- or microfiltration (claimed).

ADVANTAGE

The PET modifies the morphological submicroscopic structure of the PEEK from fibrillar to globular units, increasing the water flow rate, pressure stability and retention of the membrane.

EXAMPLE

0.2g Trevira 140 (RTM: PET, 1.6 dtex) was dissolved in a mixture of 78g H2SO4 (98%) and 101.8g CH3SO3H (98%) at room temperature, then 20g PEEK 380P (particle size less than 1.4 mm) was added to give a clear, red-brown solution after stirring for ca. 4-5 hrs., and then the casting solution was centrifuged to remove air bubbles, applied to a PE/PP nonwoven as a 100-150 micron thick layer and precipitated in water for ca. 30-60 mins. at room temperature (KB)

PREFERRED METHOD

The number average mol.weight of (I) and the PET are 24900-57100 and 14000-25000

respectively. L has a solids content not greater than 20 (10-15) weight% and contains strong acids as a solvent, pref. a mixture of CH3SO3H and H2SO4 or CF3SO3H, most pref. CH3SO3H and maximum 40 weight% H2SO4. The membrane is precipitated

at 0-60 deg.C using water or a water/solvent mixture, pref. a water/organic solvent mixture comprising 5-50 weight% organic solvent, as a precipitation agent. The

membranes are film, sleeve, capillary or hollow fibre membranes.

FS CPI

MC CPI: A05-E04E; A05-J10; A07-A03; A07-A03A; A12-W11A; J01-C03

L51 ANSWER 15 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 1996-089081 [10] WPIX

TI PTC resistor containing composite resistor material - comprises polymer material and hard filler material which is oxidation resistant

DC A85; L03; V01

IN LOITZL R; RITZER L; STRUEMLER R

PA (ALLM-C) ABB RES LTD

CYC 8

PI EP 696036 A1 19960207 (199610)* DE 17[7] H01C007-02

DE 4427161 A1 19960208 (199611) DE 16[7] H01C007-02

JP 08191003 A 19960723 (199639) JA 9[0] H01C007-02

ADT EP 696036 A1 EP 1995-810464 19950712; DE 4427161 A1 DE 1994-4427161 19940801; JP 08191003 A JP 1995-195478 19950731

PRAI DE 1994-4427161 19940801

IPCR H01B0001-20 [I,A]; H01B0001-20 [I,C]; H01C0007-02 [I,A]; H01C0007-02 [I,C]

AB EP 696036 A1 UPAB: 20060503

The PTC resistor of the type having contacts between which is a composite resistor obt'd. by high temperature mixing or forming a polymer with an elec. conductive powdered filler, comprises:

(a) the polymer is a material whose Tg, melt or crosslinking temperature is such

that the PTC transition is initiated at above 140 deg.C.; and (b) the filler is a material harder and more oxidation resistant than C black or Ag. Pref. the polymer is: (a) a thermoset based on an amide- or dihydride-hardened epoxide with a Tg above 100 degC; (b) a thermoplast or copolymer of m.pt. above 140 deg.C; or (c) a thermoplastic elastomer of crosslink temperature above 140 deg.C. Especially the polymers are:

polypropylene,

thermoplastic polyurethane, PET, PBT, polyethylene naphthalate, polyphenylene sulphide, syndiotactic polystyrene, PEEK, polyarylether ketone, polybenzimidazole, F-containing polymers and/or thermoplastic polyimides.

USE - Claimed as a structural unit of a resistor made by the high temperature forming as above, such as resistor having a specific cold resistance

below 25 m. ohm-c. and/or a high current carrying capability above 100 deg.C and/or a resistance increase between the cold conducting state and PTC transition initiation of at least 108, especially 1010.

ADVANTAGE - Resistors having a combination of a very low cold resistance and a high nominal current-carrying capability are obt'd. by a simple process independently or the type of resistor.

ABDT EP696036

The PTC resistor of the type having contacts between which is a composite resistor obt'd. by high temperature mixing or forming a polymer with an elec. conductive powdered filler, comprises:

(a) the polymer is a material whose Tg, melt or crosslinking temperature is such

that the PTC transition is initiated at above 140°C.; and (b) the filler is a material harder and more oxidation resistant than C black or Ag.

Use is claimed as a structural unit of a resistor made by the high temperature forming as above, such as resistor having a specific cold resistance below 25 m. ohm-c. and/or a high current carrying capability above 100°C and/or a resistance increase between the cold conducting state and PTC transition initiation of at least 108, especially 1010.

ADVANTAGE

Resistors having a combination of a very low cold resistance and a high nominal current-carrying capability are obt'd. by a simple process independently or the type of resistor.

EXAMPLE

A suitable compsn. hardened at 140°C for 20 hrs. comprises 'Avaldite' (RTM: Aradite F hardened by H4905) and 60 volume% etched 60 .mu.m Ni. (IL)

PREFERRED FEATURES

Prior to mixing of the filler it is stored and/or chemically etched under a vacuum or non-oxidising atmos..

The polymer is hardened or tempered in at least 2 temperature stages in the forming of the resistor.

The polymer is:

(a) a thermoset based on an amide- or dihydride-hardened epoxide with a Tg above 100°C;

(b) a thermoplast or copolymer of m.pt. above 140°C; or

(c) a thermoplastic elastomer of crosslink temperature above 140°C.

Especially pref. polymers are polypropylene, thermoplastic polyurethane, PET, PBT, polyethylene naphthalate, polyphenylene sulphide, syndiotactic polystyrene, **PEEK**, polyarylether ketone, polybenz imidazole, F-containing polymers and/or thermoplastic polyimides.

The filler (30 soluble%) has are dia. 10-500 (especially 60-108) .

μm or is of 2 fractions - one with particles below

10 μm and the other with 60-200 .

μm particles.

Filler materials are metal (especially Mo, Ni and/or W) borides, carbides, nitrides and/or silicides, used as solid, hollow or core/shell structures, with the shell of the above materials and the core of Ni, W, Ti, Zr, Mo, Co or Al, an alloy such as brass or a Ti or V oxide such as TiO, V2O3 or VO.

FS CPI; EPI

MC CPI: A08-R01; A12-E07C; L03-B01A2

EPI: V01-A02A5B

L51 ANSWER 16 OF 23 WPIX COPYRIGHT 2007

THE THOMSON CORP on STN

AN 1995-032882 [05] WPIX

DNC C1995-014895 [05]

DNN N1995-026117 [05]

TI Polyether-ether-ketone composite film production - by applying a dispersion of the resin directly to roughened metal surface and baking

DC A26; A82; G02; P42

IN SUNADA K; TOBA T

PA (NIKK-N) NIKKEN TOSO KOGYO KK

CYC 1

PI JP 06316686 A 19941115 (199505)* JA 3[0]

C09D127-12

ADT JP 06316686 A JP 1992-314349 19921030

PRAI JP 1992-314349 19921030

IPCR B05D0007-14 [I,A]; B05D0007-14 [I,C]; C09D0127-12 [I,A]; C09D0127-12 [I,C]; C09D0005-00 [I,A]; C09D0005-00 [I,C]; C09D0005-02 [I,A]; C09D0005-02 [I,C]

AB JP 06316686 A UPAB: 20050510

The coating film is formed by applying a (PFA)-polyether-ether-ketone (**PEEK**) resin dispersion directly to the surface of metal roughened by a known method and then baking it. The PFA-**PEEK** resin dispersion is prepared by mixing finely powdered polyether-ether-ketone resin into an aqueous dispersion of PFA resin in a PFA:**PEEK** ratio of 75:20 to 70:30 by weight.

ADVANTAGE - The composite coating film has high hardness and excellent resistance to heat and chemicals. It shows strong adhesion to the surface of metal without the need for priming and does not cause blistering even when boiled in hot water. - In an example, **PEEK** resin crushed to an average particle dia. of about 14 microns was mixed into aqueous dispersion of PFA resin (e.g. TC-03 (RTM) in a PFA:**PEEK** ratio of 70:30 by weight. The mixture was applied to the blasted surface of stainless steel sheet by spraying and was baked at 400 deg.C for 20 min. to form a coating film of thickness 40 to 76 microns.

FS CPI; GMPI

MC CPI: A04-E10C; A05-J10; A07-A04F; A07-B03; A08-R08B; A11-B05D; A12-B04C; A12-B04E; G02-A02B2; G02-A02D

L51 ANSWER 17 OF 23 WPIX COPYRIGHT 2007

THE THOMSON CORP on STN

AN 1994-299500 [37] WPIX

DNC C1994-136421 [37]

DNN N1994-235805 [37]

TI Lightweight, folder air bag for motor car - comprises organic polymer film as inner surface material not completely integrated with synthetic

fibrous cloth surface material

DC A95; F07; Q17

IN HANAMORI I; KOMASAKA T; MAEKAWA M

PA (KURS-C) KURARAY CO LTD

CYC 1

PI JP 06227347 A 19940816 (199437)* JA 6[2] B60R021-16

ADT JP 06227347 A JP 1993-39256 19930204

PRAI JP 1993-39256 19930204

IPCR B29C0069-00 [I,A]; B29C0069-00 [I,C]; B29D0031-00 [I,A]; B29D0031-00 [I,C]; B29K0105-08 [N,A]; B29L0031-58 [N,A]; B60R0021-16 [I,A]; B60R0021-16 [I,C]

AB JP 06227347 A UPAB: 20060109

Airbag comprises a multi-structure comprising a synthetic **fibre** base cloth surface material and an organic polymer film inner surface material having a shape retention temperature of at least 250 deg. C and thickness of 5-100 **microns**. The inner surface material is not completely integrated with the surface material.

Pref. the organic polymer film comprises e.g, silicone rubber, chloroprene rubber, polyester, nylon 66, nylon-46, crosslinking polyethylene. The synthetic **fibre** comprises nylon, polyester, polyvinyl alcohol, **polyarylate**, aramid, or **polyether ketone**.

USE/ADVANTAGE - Airbag is used for a motor car. Since inner surface material is not completely integrated with the surface material, the foundation cloth has improved strength, high tensile strength and tearing strength. Use of the organic polymer film having heat resistance provides light weight, and flexibility while retaining high heat resistance and airtightness. The resulting airbag can be folded for compactness but can be smoothly and quickly expanded and developed in the event of an emergency.

FS CPI; GMPI

MC CPI: A09-A01A; A12-T04E; F04-E03A

L51 ANSWER 18 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 1992-352348 [43] WPIX

DNC C1992-156247 [21]

DNN N1992-268417 [21]

TI Thermoplastic composite production preparation - by laminating and hot pressing

layer comprising reinforcing **fibre** and low mol. weight polyether ether ketone **fibre** and second layer comprising polyether ether

DC A32; A93; A95; P73

IN HATA S; IGUCHI M; SHIGETA H

PA (HOND-C) HONDA MOTOR CO LTD

CYC 1

PI JP 04249152 A 19920904 (199243)* JA 6[2] B32B027-12

ADT JP 04249152 A JP 1991-35654 19910204

PRAI JP 1991-35654 19910204

IPCR B29C0043-20 [I,A]; B29C0043-20 [I,C]; B29C0043-52 [I,A]; B29C0043-52 [I,C]; B29K0073-00 [N,A]; B32B0027-12 [I,A]; B32B0027-12 [I,C]; B32B0005-16 [I,A]; B32B0005-16 [I,C]; B32B0005-22 [I,C]; B32B0005-26 [I,A]

AB JP 04249152 A UPAB: 20060107

A composite thermoplastic prod. is prepared by laminating and hot pressing a first layer comprising reinforcing **fibre** and low mol.weight polyetherether ketone **fibre** and a second layer comprising high mol.weight polyetherether ketone.

The low mol.weight **PEEK fibre** has a weight average mol.weight = 6.5×10 power 4 to 8.3×10 power 4 and a dia. = 5-200 microns. The reinforcing **fibre** is, e.g., long carbon **fibre**, glass **fibre**, metal **fibre**, etc. The high mol.weight **PEEK** has a weight average mol.weight = 9.0×10 power 4 to 9.4×10 power 4 and is

used in the form of powder having an average particle size = up to 0.5mm, film having a thickness = 3-35 microns, woven or unwoven cloth. The hot press is carried out pref. at 340-400 deg.C and 6-20 kg/cm2. The toughness of composite prod. depends on the crystallinity so that the cooling of formed prod. is controlled.

USE/ADVANTAGE - The low mol.weight polyetherether ketone resin (PEEK) impregnates into the reinforcing fibre and the high mol.weight PEEK resin layer improves the toughness by controlling the cooling rate, thus the crystallinity. The composite prod. is used as a part for a motorcar, etc. and as structural part

FS CPI; GMPI

MC CPI: A05-H07; A05-J10; A08-R01; A08-R08; A11-B09C; A12-S08A; A12-S08C; A12-S08E

L51 ANSWER 19 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 1992-226023 [27] WPIX

CR 1993-026881

DNC C1992-102160 [21]

TI In-situ formation of foamed composite sandwich or foam prods. - by moulding a mixture of polyether:ether:ketone, magnesium hydroxide as activator, sodium borohydride as blowing agent and glass spheres as reinforcer

DC A26; A32; A60; E33; E34

IN COLEMAN R E; MURRAY P J; SAATCHI H; SMITH K A

PA (SUNH-C) SUNDSTRAND CORP

CYC 1

PI US 5122316 A 19920616 (199227)* EN 6[0] B29C067-00

ADT US 5122316 A US 1989-419723 19891011

PRAI US 1989-419723 19891011

IPCR C08J0009-00 [I,C]; C08J0009-06 [I,A]

AB US 5122316 A UPAB: 20050504

In-situ. preparation of advanced foamed thermoplastic composites comprises (a) mixing (i) powdered Mg(OH)2; (ii) powdered NaBH4; (iii) powdered high-temperature thermoplastic; and (iv) reinforcers and/or fillers; (b) by placing the mixture in a mould adjacent to at least one skin; and (c) applying heat and pressure to the mould. The thermoplastic (iii) melts, gas is generated within the mixture by thermal decomposition of (i) and (ii), and the reaction of the decomposition prod. (iii) does not react with (iii) at a temperature below that of the m.pt. of (iii).

Pref. (iii) is polyetheretherketone (PEEK) and (iv) is glass spheres. Also claimed is the use of (i) as activator for (ii) and also as a source of nucleating materials; and the use of (ii) as a blowing agent in the preparation of foamed prods. thermoplastic (iii) is free from materials which will react with (ii) at a temperature below that of the m.pt.

of

(iii).

USE/ADVANTAGE - Applications for the foamed composite sandwich or foam prods. include use in aircraft and space vehicles. Sound structures are formed in which cracks and voids may be avoided. Desired gas for foaming and internal pressure for consolidation are produced. No breakages of glass spheres or fibres occurs during mould

FS CPI

MC CPI: A05-H07; A05-J10; A08-B; A08-M; A08-R01; A08-S07; A11-B06C; A12-S04A1; A12-S08E; E31-Q02; E34-B02

L51 ANSWER 20 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 1992-027471 [04] WPIX

DNC C1992-011846 [21]

TI Porous polyether-ether-ketone* film preparation for precision filtration - by irradiation with ion beam, then chemical etching

DC A25; A88; J01
IN KOMAKI M; KUMAKURA M; MATSUMOTO Y; SEGUCHI T; UENO K
PA (JAAT-C) JAPAN ATOMIC ENERGY RES INST; (SUME-C) SUMITOMO ELECTRIC IND CO
CYC 1
PI JP 03273038 A 19911204 (199204)* JA
ADT JP 03273038 A JP 1990-72878 19900322
PRAI JP 1990-72878 19900322
IPCR B01D0067-00 [I,A]; B01D0067-00 [I,C]; B01D0071-00 [I,C]; B01D0071-52 [I,A]; C08J0009-00 [I,C]; C08J0009-26 [I,A]
AB JP 03273038 A UPAB: 20050503
Porous polyether-ether-ketone(PEEK) film is prepared by irradiating a PEEK film with charged particles to form irradiation-induced damages and then chemically etching. The film has cylindrical holes with an average hole diameter of less than 10 microns.
The PEEK film is pref. irradiated with ionised radiations or UV rays and then chemically etched. The chemical etching is conducted by the use of an oxidising solution. The oxidising solution contains KMnO4, NaClO, H2SO4 and/or K2Cr2O7.
USE/ADVANTAGE - The porous film is used as a separating membrane for precision filtration and ultrafiltration. It has a uniform hole diameter so that the filtration of objects is easy. - A PEEK film with a thickness of 2 microns was irradiated with Ar+3 ions at an irradiation dose of 5 x 10 power 8 ions/cm2 and then dipped in a K2Cr2O7+H2SO4 solution(5 g+18 g) for 6 hrs. at 65 deg.C to give a porous PEEK film. The porous PEEK film has a hole diameter of 0.1 microns and a hole density of 5 x 10 power 8 holes/cm2. @ (5pp Dwg.No.0/0)
FS CPI
MC CPI: A05-H07; A05-J10; A11-C04D; A11-C04E; A12-W11A; J01-C03

L51 ANSWER 21 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 1991-241132 [33] WPIX
DNC C1991-104638 [21]
DNN N1991-183696 [21]
TI Extrusion moulded sheet and electrical insulation board - comprises a compsn. containing polyether ketone, fibre reinforcement and inorganic cpd(s). having good heat resistance
DC A26; A85; L03; X12
IN KAMIYA K; NAKAYAMA Y; OKUBO M; OKUMURA S; TANIMOTO K
PA (NIRA-C) UNITIKA LTD
CYC 1
PI JP 03151220 A 19910627 (199133)* JA
ADT JP 03151220 A JP 1989-290452 19891108
PRAI JP 1989-290452 19891108
IPCR B29C0047-00 [I,A]; B29C0047-00 [I,C]; B29K0105-06 [N,A]; B29K0071-00 [N,A]; C08K0007-00 [I,A]; C08K0007-00 [I,C]; C08K0007-02 [I,A]; C08L0071-00 [I,C]; C08L0071-08 [I,A]; C08L0071-10 [I,A]; H01B0003-30 [I,A]; H01B0003-30 [I,C]
AB JP 03151220 A UPAB: 20050502
Compsn. consists of 100 pts. weight of aromatic polyether ketone, 2-50 pts. weight of fibre reinforcement and 5-50 pts. weight of inorganic cpd. with 50 microns or less of average dia.
Pref. aromatic polyether ketone is polyetheretherketone consisting of (a), polymer consisting of mainly (a) and smaller amts. of (b)-(d). Intrinsic viscosity is pref. 0.8 or more (at 25 deg.C in 96% H2SO4 solvent). Fibre reinforcement is pref. glass fibre, 0.1-10 mm long opt. surface treated with silane coupling agent such as vinyltriethoxysilane, chrome coupling agent such as methacrylate chromic chloride. Inorganics are pref. mica, talc,

wollastonite and the sheet increased its crystallinity by heat rolling in order to give the board.

ADVANTAGE - Sheet has heat resistance, small difference of mechanical strength between machine direction and transverse direction and surface smoothness. The soldering proof electrical insulation board is inexpensively prepared by heating the sheet. @ (4pp Dwg.No.0/0)@

FS CPI; EPI

MC CPI: A05-H07; A05-J10; A08-R01; A11-B07A; A12-E01; A12-S08A; A12-S08D2;

A12-S08E; L03-A; L03-J

EPI: X12-E02B

L51 ANSWER 22 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 1990-301322 [40] WPIX

DNC C1990-130183 [21]

TI Lubricative resin-compsn. - comprises fluorinated resin and aromatic polyether-ketone polymer particles

DC A14; A25; A85; L03

IN ARAKI M; SATO E

PA (ASAHI-C) ASAHI CHEM IND CO LTD

CYC 1

PI JP 02212539 A 19900823 (199040)* JA

ADT JP 02212539 A JP 1989-32722 19890214

PRAI JP 1989-32722 19890214

IPCR C08L0027-00 [I,C]; C08L0027-12 [I,A]; C08L0071-00 [I,C]; C08L0071-08 [I,A]; C08L0071-10 [I,A]; C08L0087-00 [I,A]; C08L0087-00 [I,C]

AB JP 02212539 A UPAB: 20050501

Lubricative resin-compsn. is composed of (A) 30-95 weight% of a fluorine-contained resin and (B) 5-70 weight% of particles of polymer of an aromatic polyether-ketone. The (A) fluorine-contained resin is pref. polytetrafluoroethylene e.g. Teflon 7AJmm(RTM) made by Mitsui Fluorochemical KK; of which average MW is pref. 10000-50000.

The (B) polymer of aromatic polyether-ketone

: pref. one represented by formula: e.g. (I) which can be copolymer with the other recurring units than that of the ether-ketone in amount of less 40 mol.%; of which relative-viscosity: pref. 0.8 (microinh); of which particles are prepared by milling with conventional mill e.g. ball-mill or jet-mill etc. to give particle-size: pref. 5-50 micron; shape of the particles: especially sphere.

USE/ADVANTAGE - Lubricative resin-compsn. used for parts of electric- or mechanical-apparatus can be produced, has improved sliding property partic. at high temperature-range and its durability for long period, resulting possibility for changing sliding-material e.g. shaft-bearing of metal to resin giving light-weight and low cost.

FS CPI

MC CPI: A04-E10; A05-H07; A05-J06; A08-R08; A12-W02; L03-J

L51 ANSWER 23 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 1985-046371 [08] WPIX

DNC C1985-020131 [21]

DNN N1985-034516 [21]

TI Underground hydrocarbon formations heating - using electrode support conduit made of resin impregnated glass cloth wound over metal conduit

DC A85; H01; P73; Q49; Q67

IN HAYASHI O; MATSUDA S; OKAHASHI K; OKAMOTO G; TAKAHASHI I

PA (MITQ-C) MITSUBISHI ELECTRIC CORP

CYC 3

PI JP 60003388 A 19850109 (198508)* JA 6[2]

CA 1224164 A 19870714 (198732) EN

JP 63016560 B 19880409 (198818) JA
 US 4798769 A 19890117 (198906) EN B32B015-08
 ADT JP 60003388 A JP 1983-109649 19830617; JP 63016560 B JP 1983-109649
 19830617; US 4798769 A US 1987-14207 19870205
 PRAI JP 1983-109649 19830617
 IPCR B29C0063-00 [I,C]; B29C0063-24 [I,A]; B29K0023-00 [N,A]; B29K0009-00
 [N,A]; B32B0015-08 [I,A]; B32B0015-08 [I,C]; E21B0017-00 [I,A];
 E21B0017-00 [I,C]; E21B0036-00 [I,C]; E21B0036-04 [I,A]; E21B0043-16
 [I,C]; E21B0043-24 [I,A]; E21C0041-00 [I,C]; E21C0041-24 [I,A];
 F16L0025-00 [I,C]; F16L0025-01 [I,A]
 AB JP 60003388 A UPAB: 20050423
 Support conduit, used for heating electrically underground hydrocarbon
 sources (e.g., bitumen contained in oil sand or tar sand, etc.), is
 produced if a polyether-etherketone resin film of a thickness of 0.01-0.40
 mm and a glass fibre cloth impregnated with a water-dispersed
 varnish of polyether-etherketone resin or polyphenylene sulphide resin are
 alternately wound on the surface of a metal conduit (e.g., stainless steel
 tube, etc.) having a length of 200-600 m into several layers, and then the
 metal conduit so treated is set in moulds and hot-pressed at 350-450 deg.
 C under a pressure of 10-200 kg/sq.cm.
 USE/ADVANTAGE - The support conduit has excellent hot water
 resistance, corrosion resistance and dielectric strength characteristics,
 as well as mechanical strength. It is used effectively for electrically
 heating underground hydrocarbon resources.
 FS CPI; GMPI
 MC CPI: A05-H07; A05-J05; A11-B09A; A12-E10; A12-S08D; A12-W10; H01-D08

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=> D QUE L39

L3 5 SEA FILE=REGISTRY ABB=ON (24937-16-4/BI OR 25035-04-5/BI OR
 25038-74-8/BI OR 25587-80-8/BI OR 31694-16-3/BI)
 L6 281582 SEA FILE=REGISTRY ABB=ON POLYETHER/PCT
 L7 19946 SEA FILE=REGISTRY ABB=ON POLYKETONE/PCT
 L8 9443 SEA FILE=REGISTRY ABB=ON L6 AND L7
 L9 2652 SEA FILE=REGISTRY ABB=ON L8 NOT (N OR S)/ELS

L10 1 SEA FILE=REGISTRY ABB=ON L3 AND L9
 L12 5363 SEA FILE=HCAPLUS ABB=ON L10
 L13 2489 SEA FILE=HCAPLUS ABB=ON L12 AND (FIBER? OR FIBRE?)
 L14 5 SEA FILE=HCAPLUS ABB=ON L13 AND MICRON#
 L16 22 SEA FILE=HCAPLUS ABB=ON L13 AND (PARTICLE? OR SIZE?) (3A) (10
 OR 15 OR 20 OR 30 OR 35 OR 40 OR 50 OR 55 OR 45 OR 60 OR 65 OR
 70 OR 75 OR 80 OR 85 OR 90 OR 95 OR 100)
 L18 58 SEA FILE=HCAPLUS ABB=ON L13 AND "MU.M" (3A) (10 OR 15 OR 20 OR
 30 OR 35 OR 40 OR 50 OR 55 OR 45 OR 60 OR 65 OR 70 OR 75 OR 80
 OR 85 OR 90 OR 95 OR 100)
 L19 13 SEA FILE=HCAPLUS ABB=ON L16 AND L18
 L20 119 SEA FILE=HCAPLUS ABB=ON (L12 OR PEEK) (L) "MU.M" (3A) (10 OR 15
 OR 20 OR 30 OR 35 OR 40 OR 50 OR 55 OR 45 OR 60 OR 65 OR 70 OR
 75 OR 80 OR 85 OR 90 OR 95 OR 100)
 L21 26 SEA FILE=HCAPLUS ABB=ON (L12 OR PEEK) (6A) "MU.M" (3A) (10 OR 15
 OR 20 OR 30 OR 35 OR 40 OR 50 OR 55 OR 45 OR 60 OR 65 OR 70 OR
 75 OR 80 OR 85 OR 90 OR 95 OR 100)
 L22 36 SEA FILE=HCAPLUS ABB=ON L20 AND (FIBER? OR FIBRE?)
 L23 6 SEA FILE=HCAPLUS ABB=ON L21 AND (FIBER? OR FIBRE?)
 L24 48 SEA FILE=HCAPLUS ABB=ON L14 OR L19 OR L22 OR L23
 L27 303 SEA FILE=HCAPLUS ABB=ON L12 (L) PREP/RL
 L29 826 SEA FILE=HCAPLUS ABB=ON L12 (L) POF/RL
 L33 365 SEA FILE=HCAPLUS ABB=ON (L27 OR L29) (L) (FIBER? OR FIBRE?)
 L34 8 SEA FILE=HCAPLUS ABB=ON L33 (L) POWDER?
 L35 6 SEA FILE=HCAPLUS ABB=ON L33 AND "MU.M" (3A) (10 OR 15 OR 20 OR
 30 OR 35 OR 40 OR 50 OR 55 OR 45 OR 60 OR 65 OR 70 OR 75 OR 80
 OR 85 OR 90 OR 95 OR 100)
 L36 12 SEA FILE=HCAPLUS ABB=ON L33 AND SPHER?
 L37 67 SEA FILE=HCAPLUS ABB=ON L24 OR (L34 OR L35 OR L36)
 L38 59 SEA FILE=HCAPLUS ABB=ON L37 AND (PLASTIC? OR POLYMER?)/SC, SX
 L39 56 SEA FILE=HCAPLUS ABB=ON L38 AND (1840-2004)/PRY, AY, PY

=> D L39 BIB ABS IND HITSTR 1-56

L39 ANSWER 1 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 2005:1027880 HCAPLUS
 DN 143:307288
 TI Aromatic polyether-polyketone powders for the production of
 fiber-reinforced molded structures
 IN Hesse, Peter; Paul, Tillmann; Weiss, Richard
 PA Toyota Motorsport GmbH, Germany
 SO U.S. Pat. Appl. Publ., 13 pp., Cont. of Appl. No. PCT/EP04/002965.
 CODEN: USXXCO
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2005207931	A1	20050922	US 2004-816171	20040402 <--
	WO 2005090448	A1	20050929	WO 2004-EP2965	20040322 <--
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,				

SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN,
TD, TG

WO 2005090449 A1 20050929 WO 2005-EP2991 20050321 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,
CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI,
NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM,
SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM,
AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT,
RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,
MR, NE, SN, TD, TG

EP 1660566 A1 20060531 EP 2005-728203 20050321 <--
R: DE, IT

DE 202005020596 U1 20060608 DE 2005-202005020596 20050321 <--
PRAI WO 2004-EP2965 A1 20040322 <--
WO 2005-EP2991 W 20050321

AB Spherical polymer powder, such as polyaryl ether ketone plastic
powder, is mixed with stiffening and/or reinforcing fibers and melt-molded
to form complex structures.

IC ICM B22F003-10
INCL 419010000
CC 38-2 (Plastics Fabrication and Uses)
ST polyaryl ether ketone reinforcing fiber polymer composite
IT Carbon fibers, uses
Glass fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(aromatic polyether-polyketone powders for the production of
fiber-reinforced
molded structures)

IT Synthetic fibers
RL: MOA (Modifier or additive use); USES (Uses)
(boron; aromatic polyether-polyketone powders for the production of
fiber-reinforced molded structures)

IT Polyamides, uses
RL: MOA (Modifier or additive use); USES (Uses)
(crosslinked; aromatic polyether-polyketone powders for the production of
fiber-reinforced molded structures)

IT Reinforced plastics
RL: TEM (Technical or engineered material use); USES (Uses)
(fiber-reinforced; aromatic polyether-polyketone powders for the production
of
fiber-reinforced molded structures)

IT Ceramics
(fibers; aromatic polyether-polyketone powders for the production of
fiber-reinforced molded structures)

IT Polyketones
RL: POF (Polymer in formulation); TEM (Technical or engineered material
use); USES (Uses)
(polyether-, aromatic; aromatic polyether-polyketone powders for the
production
of fiber-reinforced molded structures)

IT Polyethers, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material
use); USES (Uses)
(polyketone-, aromatic; aromatic polyether-polyketone powders for the
production
of fiber-reinforced molded structures)

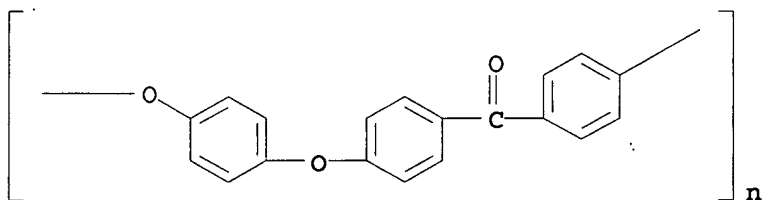
IT 24937-16-4, PA12 25035-04-5, PA11 25038-74-8 25587-80-8
 RL: MOA (Modifier or additive use); USES (Uses)
 (aromatic polyether-polyketone powders for the production of
 fiber-reinforced
 molded structures)

IT 31694-16-3
 RL: POF (Polymer in formulation); TEM (Technical or engineered
 material use); USES (Uses)
 (aromatic polyether-polyketone powders for the production of
 fiber-reinforced molded structures)

IT 31694-16-3
 RL: POF (Polymer in formulation); TEM (Technical or engineered
 material use); USES (Uses)
 (aromatic polyether-polyketone powders for the production of
 fiber-reinforced molded structures)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX
 NAME)



L39 ANSWER 2 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:57424 HCAPLUS

DN 142:136061

TI Rolling devices with long service life and suppressed outgas generation

IN Saito, Takeshi; Ito, Hiroyuki; Tomitsuka, Yasushi

PA NSK Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005016589	A	20050120	JP 2003-180004	20030624 <--
PRAI	JP 2003-180004		20030624 <--		

AB The devices consist of several rolling elements placed between stainless steel outer members and inner members, polyether ether ketone holding pieces placed between the rolling elements, and lubricant coatings with thickness 0.1-10 .mu.m on at least rolling surfaces of the rolling elements, and optionally rolling paths of the outer members and inner members. Thus, a ball screw composed of a screw axis, a nut, balls, and a circulation tube, each coated with mixts. containing Fomblin Z DOAC (fluoropolymer) and Demnum S 200 (F-containing oil), and holding pieces containing Victrex PEEK 450CA30 (carbon fiber -reinforced polyether ether ketone) showed suppressed dust formation.

IC ICM F16H025-24

ICS F16C029-06; F16C031-06; F16C033-44; F16C033-56; F16C033-66;
 F16H025-22

CC 38-3 (Plastics Fabrication and Uses)
 Section cross-reference(s): 55

ST rolling device stainless steel lubricant coating; polyether ether ketone
carbon **fiber** reinforced rolling; lubricant coating fluoropolymer
oil rolling bearing

IT Lubricating greases
(F-containing; rolling devices with long service life and suppressed outgas
generation)

IT Reinforced plastics
RL: TEM (Technical or engineered material use); USES (Uses)
(carbon **fiber**-reinforced; rolling devices with long service
life and suppressed outgas generation)

IT Polyoxyalkylenes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(perfluoro, lubricant coatings; rolling devices with long service life
and suppressed outgas generation)

IT Polyketones
RL: TEM (Technical or engineered material use); USES (Uses)
(polyether-; rolling devices with long service life and suppressed
outgas generation)

IT Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyketone-; rolling devices with long service life and suppressed
outgas generation)

IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyoxyalkylene-, perfluoro, lubricant coatings; rolling devices with
long service life and suppressed outgas generation)

IT Lubricants
Nuts (fasteners)
Screws
(rolling devices with long service life and suppressed outgas
generation)

IT Carbon **fibers**, uses
RL: MOA (Modifier or additive use); TEM (Technical or engineered material
use); USES (Uses)
(rolling devices with long service life and suppressed outgas
generation)

IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(rolling devices with long service life and suppressed outgas
generation)

IT Bearings
(rolling; rolling devices with long service life and suppressed outgas
generation)

IT 31694-16-3
RL: TEM (Technical or engineered material use); USES (Uses)
(Viktrex PEEK 450CA30, Viktrex PEEK 450G, holding piece; rolling
devices with long service life and suppressed outgas generation)

IT 7440-44-0, Carbon, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(diamond-like, hard-coat layer; rolling devices with long service life
and suppressed outgas generation)

IT 154769-61-6, Carbon nitride
RL: TEM (Technical or engineered material use); USES (Uses)
(hard-coat layer; rolling devices with long service life and suppressed
outgas generation)

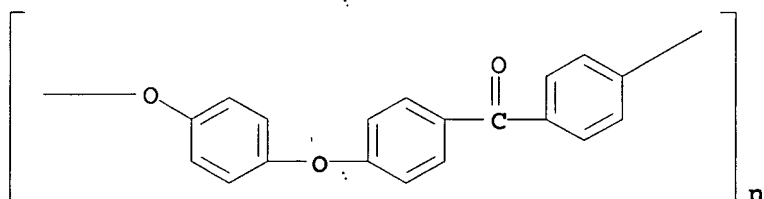
IT 31533-76-3, Pentaphenyl ether 105060-59-1, Demnum S 200 106441-39-8,
Fomblin Z-DIAC 136585-40-5, Tris(2-octyldodecyl)cyclopentane
191359-05-4, S 3105 205886-70-0, Nye Synthetic Oil 2001A
RL: TEM (Technical or engineered material use); USES (Uses)
(lubricant coating; rolling devices with long service life and

- suppressed outgas generation)
- IT 12725-30-3, SUS 440C
RL: TEM (Technical or engineered material use); USES (Uses)
(rolling balls, screws and nuts; rolling devices with long service life and suppressed outgas generation)
- IT 827341-33-3, Fomblin YVAC 3
RL: TEM (Technical or engineered material use); USES (Uses)
(rolling devices with long service life and suppressed outgas generation)
- L39 ANSWER 3 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:359169 HCAPLUS
DN 142:156739
TI Modeling of **spherulitic** crystallization in thermoplastic tow-placement process: **spherulitic** microstructure evolution
AU Guan, X.; Pitchumani, R.
CS Department of Mechanical Engineering, Composites Processing Laboratory, University of Connecticut, Storrs, CT, 06269-3139, USA
SO Composites Science and Technology (2004), 64(9), 1363-1374
CODEN: CSTCEH; ISSN: 0266-3538
PB Elsevier Science Ltd.
DT Journal
LA English
AB A numerical study on the evolution of **spherulitic** microstructures during crystallization of fiber-reinforced PEEK in a composite tow-placement process is presented. A model for **spherulitic** microstructure growth within a unit cell formed between adjacent fibers and at the interlayer surface is developed, by accounting for the spatial temperature variation and the temperature history resulting from hot gas torch heating during the process, as discussed in a previous work [Compos. Sci. Tech., in press]. Parametric studies are conducted to elucidate the effects of processing conditions, in terms of torch incidence angle, θ , torch exit diameter, D , torch distance to target, L , hot gas temperature, T_{noz} , gas velocity, U_{noz} , line speed, V , and number of layers in tow substrate, N_{layer} , on the crystalline microstructures. The range of average **spherulite** size corresponding to optimal processing conditions based on considerations of overall crystallinity is determined
- CC 37-5 (Plastics Manufacture and Processing)
ST modeling **spherulitic** crystn fiber reinforced PEEK microstructure
IT Carbon fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(modeling of **spherulitic** crystallization in carbon fiber reinforced-PEEK tow-placement process)
- IT Polyketones
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(polyether-; modeling of **spherulitic** crystallization in carbon fiber reinforced-PEEK tow-placement process)
- IT Polyethers, properties
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(polyketone-; modeling of **spherulitic** crystallization in carbon fiber reinforced-PEEK tow-placement process)
- IT Crystallization
Polymer morphology
(**spherulitic**; modeling of **spherulitic** crystallization in carbon fiber reinforced-PEEK tow-placement process)

IT 31694-16-3, APC 2
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(carbon fiber-reinforced; modeling of spherulitic crystallization in carbon fiber reinforced-PEEK tow-placement process)

IT 31694-16-3, APC 2
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(carbon fiber-reinforced; modeling of spherulitic crystallization in carbon fiber reinforced-PEEK tow-placement process)

RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 4 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:359150 HCAPLUS
DN 142:156736
TI Modeling of spherulitic crystallization in thermoplastic tow-placement process: heat transfer analysis
AU Guan, X.; Pitchumani, R.
CS Department of Mechanical Engineering, Composites Processing Laboratory, University of Connecticut, Storrs, CT, 06269-3139, USA
SO Composites Science and Technology (2004), 64(9), 1123-1134
CODEN: CSTCEH; ISSN: 0266-3538
PB Elsevier Science Ltd.
DT Journal
LA English
AB An impingement heat transfer anal. is presented for hot gas torch heating in a tow-placement process of thermoplastic matrix composites. It is shown that exptl. available convective heat transfer correlations for normal and oblique impingement can be adapted to the geometry specific to the process by following first principles. Parametric studies are conducted using a coupled heat transfer and crystallization kinetics model for fabrication of a fiber-reinforced PEEK composite. Effects of processing parameters, in terms of torch incidence angle, θ , torch exit diameter, D, torch distance to target, L, hot gas temperature, Tnoz, gas velocity, Unoz, line speed, V, and number of layers in tow substrate, Nlayer, on the crystallinity development in product are elucidated. Based on an optimal level of crystallinity, a processing window is identified by determining min. and sonic gas velocities at various gas temps. and line speeds.

CC 37-5 (Plastics Manufacture and Processing)
ST modeling spherulitic crystn fiber reinforced PEEK heat transfer
IT Crystallinity

Heat transfer
Simulation and Modeling
(heat transfer anal. modeling of **spherulitic** crystallization in carbon fiber-reinforced PEEK tow-placement process)

IT Carbon fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(heat transfer anal. modeling of **spherulitic** crystallization in carbon fiber-reinforced PEEK tow-placement process)

IT Polyketones
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(polyether-; heat transfer anal. modeling of **spherulitic** crystallization in carbon fiber-reinforced PEEK tow-placement process)

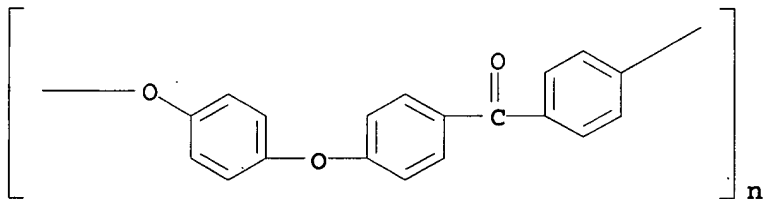
IT Polyethers, properties
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(polyketone-; heat transfer anal. modeling of **spherulitic** crystallization in carbon fiber-reinforced PEEK tow-placement process)

IT Crystallization
(**spherulitic**; heat transfer anal. modeling of **spherulitic** crystallization in carbon fiber-reinforced PEEK tow-placement process)

IT 31694-16-3, APC-2
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(carbon fiber-reinforced; heat transfer anal. modeling of **spherulitic** crystallization in carbon fiber-reinforced PEEK tow-placement process)

IT 31694-16-3, APC-2
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(carbon fiber-reinforced; heat transfer anal. modeling of **spherulitic** crystallization in carbon fiber-reinforced PEEK tow-placement process)

RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 5 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:347876 HCAPLUS
DN 141:72532
TI Sliding performance of polymer composites in liquid hydrogen and liquid nitrogen

AU Zhang, Z.; Klein, P.; Theiler, G.; Huebner, W.
 CS Institute for Composite Materials, University of Kaiserslautern,
 Kaiserslautern, 67663, Germany
 SO Journal of Materials Science (2004), 39(9), 2989-2995
 CODEN: JMTSAS; ISSN: 0022-2461
 PB Kluwer Academic Publishers
 DT Journal
 LA English
 AB Outstanding features favor the application of polymers and polymer
 composites in low-temperature technol. The booming hydrogen technol. is a
 challenge for these materials, which are considered as seals and bearings
 in cryogenic pumps. In the present study, three types of thermoplastics,
 i.e., polyetheretherketone (PEEK), polyetherimide (PEI) and polyamide 6,6
 (PA6,6), and one epoxy were considered as matrix materials.
 Micron-sized fillers, i.e., short carbon fibers,
 graphite flakes, and PTFE powders, were incorporated into these polymers
 together with nano-sized TiO₂ particles. Optimized compns. of each matrix
 were selected from our previous works at room temperature in order to be
 studied
 at very low temperature conditions. In particular, frictional tests were
 carried out with polymer composite pins against polished steel surfaces
 under constant load over a certain distance in liquid hydrogen and liquid
 nitrogen. Afterwards, worn surfaces were analyzed by using SEM. It was
 found out that the tribol. properties in liquid hydrogen are dominated by
 the matrix materials, in particular thermoplastics perform generally
 slightly better than thermosetting resins.
 CC 38-3 (Plastics Fabrication and Uses)
 ST sliding polymer composite liq hydrogen nitrogen
 IT Polyamides, uses
 RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 (Zytel 110; sliding performance of polymer composites in liquid hydrogen
 and liquid nitrogen)
 IT Fluoropolymers, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (internal lubricant; sliding performance of polymer composites in liquid
 hydrogen and liquid nitrogen)
 IT Carbon fibers, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (pitch-based, Kureha M 2007S; sliding performance of polymer composites
 in liquid hydrogen and liquid nitrogen)
 IT Polyimides, uses
 Polyketones
 RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 (polyether-; sliding performance of polymer composites in liquid hydrogen
 and liquid nitrogen)
 IT Polyethers, uses
 RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 (polyimide-; sliding performance of polymer composites in liquid hydrogen
 and liquid nitrogen)
 IT Polyethers, uses
 RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 (polyketone-; sliding performance of polymer composites in liquid
 hydrogen and liquid nitrogen)
 IT Bearings
 Cryogenics
 Friction
 Nanoparticles
 Sealing compositions
 (sliding performance of polymer composites in liquid hydrogen and liquid
 nitrogen)

IT Epoxy resins, uses
Polyamides, uses
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)

IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)

IT Lubricants
(solid; sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)

IT 32131-17-2, PA 66, uses
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(Zytel 110; sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)

IT 61128-46-9
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(assumed monomers; sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)

IT 7782-42-5, Graphite, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(flakes; sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)

IT 9002-84-0, Dyneon 9207
RL: TEM (Technical or engineered material use); USES (Uses)
(internal lubricant; sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)

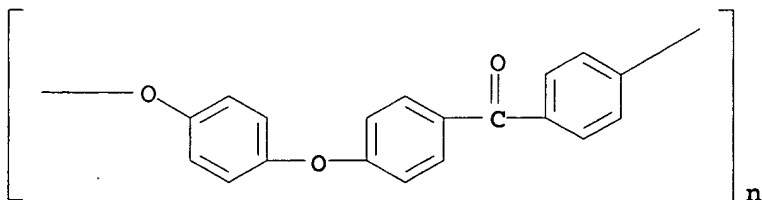
IT 461426-90-4, Kronos 2310
RL: TEM (Technical or engineered material use); USES (Uses)
(nanoparticles; sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)

IT 1333-74-0, Hydrogen, uses 7727-37-9, Nitrogen, uses
RL: NUU (Other use, unclassified); USES (Uses)
(sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)

IT 31694-16-3, Victrex 450G 61128-24-3, Ultem 1000 191466-32-7, Der 331-HY 2954 copolymer
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)

IT 31694-16-3, Victrex 450G
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)

RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD

KATHLEEN FULLER EIC1700 REMSEN 4B28 571/272-2505

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 6 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:892841 HCAPLUS

DN 139:365819

TI Production of composite materials comprising high-viscosity polymers

IN Seargeant, Kenneth Malcolm

PA Victrex Manufacturing Limited, UK

SO PCT Int. Appl., 34 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003093354	A1	20031113	WO 2003-GB1872	20030502 <--
	W:			AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW	
	RW:			GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG	
	AU 2003239662	A1	20031117	AU 2003-239662	20030502 <--
	US 2005100724	A1	20050512	US 2004-978821	20041102 <--
PRAI	GB 2002-10085	A	20020502	<--	
	GB 2003-6639	A	20030322	<--	
	WO 2003-GB1872	W	20030502	<--	
	WO 2003-GB301872	A2	20030502	<--	
	WO 2004-GB1222	A2	20040319	<--	

AB A method of manufacturing a composite material comprising a matrix material and a fibrous or plate-like filler material comprises the steps of (a) contacting the matrix material and the filler material in a liquid medium to provide a mixture of the matrix material and the filler material in the liquid medium, and (b) removing at least some of the liquid medium to produce a mass comprising the matrix material and the filler material. The matrix material can be a thermofusible material, such as polyether-polyketone or polyether-polysulfone, and the filler material is selected from glasses, graphite, synthetic organic polymers, inorg. materials, minerals, metals, and ceramics. The mass comprising the matrix material and the filler material may be used to make articles by injection molding or extrusion. Thus, aluminum oxide-silica **fibers** (BelCoTex) were mixed with water to form a slurry, followed by addition of polyether-polyketone powder (Victrex **PEEK 150PF**) having **particles** with **d50 of 50** mu.m. Water was drained, and a solid pad of BelCoTex **fibers** (10) and **PEEK** (90%) was obtained after drying at 150°.

IC ICM C08J003-215

ICS C08K007-02

CC 37-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 40

ST reinforced polyether polyketone composite; polyether polysulfone reinforced plastic

IT Synthetic **fibers**

RL: TEM (Technical or engineered material use); USES (Uses)

(aluminum oxide, Saffil LA; production of composite materials comprising high-viscosity polymers)

- IT Synthetic **fibers**
RL: TEM (Technical or engineered material use); USES (Uses)
(aluminum oxide-silica, BelCoTex, Saffil RF; production of composite materials comprising high-viscosity polymers)
- IT Polyamide **fibers**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(aramid, Kevlar and Twaron 1091; production of composite materials comprising high-viscosity polymers)
- IT Polyamides, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(aromatic; production of composite materials comprising high-viscosity polymers)
- IT Reinforced plastics
RL: TEM (Technical or engineered material use); USES (Uses)
(**fiber**-reinforced; production of composite materials comprising high-viscosity polymers)
- IT Synthetic **fibers**
RL: TEM (Technical or engineered material use); USES (Uses)
(inorg.; production of composite materials comprising high-viscosity polymers)
- IT Carbon **fibers**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(pitch-based, M 111F and M 115F; production of composite materials comprising high-viscosity polymers)
- IT Polyketones
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-, aromatic; production of composite materials comprising high-viscosity polymers)
- IT Polyketones
Polysulfones, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(polyether-; production of composite materials comprising high-viscosity polymers)
- IT Polyethers, properties
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyketone-, aromatic; production of composite materials comprising high-viscosity polymers)
- IT Polyethers, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(polyketone-; production of composite materials comprising high-viscosity polymers)
- IT Polyethers, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(polysulfone-; production of composite materials comprising high-viscosity polymers)
- IT Ceramics
Extrusion of plastics and rubbers
Fillers
Molding of plastics and rubbers
(production of composite materials comprising high-viscosity polymers)
- IT Polyoxyarylenes
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(production of composite materials comprising high-viscosity polymers)

IT Carbon fibers, uses
Extruded plastics
Glass, uses
Glass fibers, uses
Metals, uses
Minerals, uses
Molded plastics, uses
Reinforced plastics
RL: TEM (Technical or engineered material use); USES (Uses)
(production of composite materials comprising high-viscosity polymers)

IT 31694-16-3, PEEK
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(Victrex PEEK 150PF and Victrex PEEK 450PF; production of composite materials comprising high-viscosity polymers)

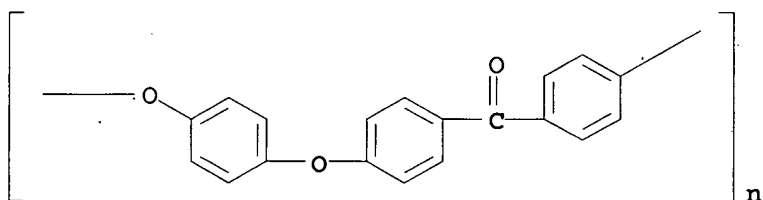
IT 7732-18-5, Water, uses
RL: NUU (Other use, unclassified); USES (Uses)
(production of composite materials comprising high-viscosity polymers)

IT 25014-41-9D, Polyacrylonitrile, oxidized
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(production of composite materials comprising high-viscosity polymers)

IT 1344-28-1, Alumina, uses 7782-42-5, Graphite, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(production of composite materials comprising high-viscosity polymers)

IT 31694-16-3, PEEK
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(Victrex PEEK 150PF and Victrex PEEK 450PF; production of composite materials comprising high-viscosity polymers)

RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 7 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:793991 HCAPLUS
DN 137:295992
TI Thermoplastic resin composition for molding socket of integrated circuit (IC) package
IN Nishihata, Naomitsu; Tada, Masahito
PA Kureha Kagaku Kogyo K.K., Japan
SO PCT Int. Appl., 27 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.

KIND

DATE

APPLICATION NO.

DATE

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PI  WO 2002082592      A1      20021017      WO 2002-JP2945      20020327 <--
    W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
      CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
      GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
      LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
      PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,
      UA, UG, US, UZ, VN, YU, ZA, ZM, ZW
    RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,
      CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR,
      BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
    EP 1376782      A1      20040102      EP 2002-708673      20020327 <--
    R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
      IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
    CN 1502152      A      20040602      CN 2002-807764      20020327 <--
PRAI JP 2001-105212      A      20010403      <--
    WO 2002-JP2945      W      20020327      <--

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AB Title resin composition for IC sockets with strict range of surface resistivity, as well as good elec. insulation, mech. strength, heat- and chemical-resistance, and dimensional stability, comprises (A) thermoplastic resins 40-94, (B) heat-treated carbon precursors having volume resistivity of 102-1010 $\Omega \cdot \text{cm}$ 5-30, (C) elec. conductive fillers having volume resistivity of $\leq 102 \Omega \cdot \text{cm}$ 1-30 wt%. Thus, a sample was prepared from polyethersulfone Sumika Excel PES 3600G 70, **particles** prepared by heat-treating oxidized petroleum pitch in an inert atmospheric (C content 91.0%; average diameter 25 μm) 15, and pitch-based carbon **fibers** 10, showing surface resistivity 109 Ω/square , heat deformation temperature 220°, and resistivity fluctuation, as indicated by ratio of the maximum and min. value, 3.75.

IC ICM H01R033-76
ICS C08K003-04; C08K007-06; C08L101-00

CC 38-3 (**Plastics** Fabrication and Uses)
Section cross-reference(s): 37, 76

ST oxidized petroleum pitch polyethersulfone carbon **fiber** socket integrated circuit

IT Polyesters, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(aromatic; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Electric contacts
(connectors; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Electric conductors
(fillers; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Petroleum pitch
(oxidized, carbon precursor; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Carbon **fibers**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(pitch-based, Dialead K 223QY; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Carbon **fibers**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(polyacrylonitrile-based, Besfight HTA 3000; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Polyimides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyamide-; thermoplastic resin composition for molding IC socket with

strict surface resistivity)

IT Polyimides, uses
Polyketones
Polysulfones, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyimide-; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Polyamides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyimide-; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyketone-; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polysulfone-; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Integrated circuits
(sockets; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Heat-resistant materials
(thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Polythiophenylenes
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Fluoropolymers, uses
Polyamides, uses
Polyesters, uses
Polyoxyphenylenes
Polysulfones, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT 25212-74-2, Fortron KPS-W 214 25667-42-9, Sumika Excel PES 3600G
31694-16-3, PEEK 150P 61128-24-3, Ultem 1010
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(thermoplastic resin composition for molding IC socket with strict surface resistivity)

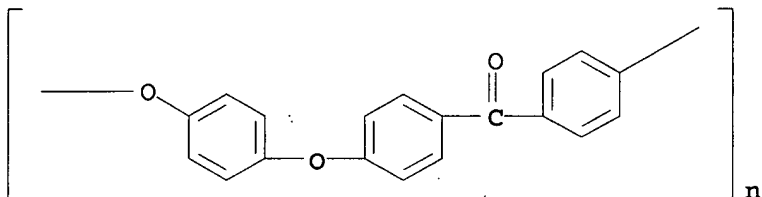
IT 24968-12-5, Poly(butylene terephthalate) 25038-59-9, PET polyester, uses
26062-94-2, Poly(butylene terephthalate)
RL: TEM (Technical or engineered material use); USES (Uses)
(thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT 31694-16-3, PEEK 150P
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(thermoplastic resin composition for molding IC socket with strict surface resistivity)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 8 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2002:388811 HCAPLUS

DN 136:394477

TI Insulator materials and build-up multilayer printed circuit boards using materials thereof

IN Yamada, Nobutsuki; Taniguchi, Koichiro

PA Mitsubishi Plastics Industries, Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002151850	A	20020524	JP 2000-343938	20001110 <--
	JP 3806593	B2	20060809		
PRAI	JP 2000-343938		20001110 <--		

AB The title insulator materials for build-up manufacturing comprise (1) 100 weight

parts thermoplastic polymer containing 25-70 weight% polyaryl ketone (crystalline

melting peak temperature $\geq 260^\circ$) and 25-70 weight% amorphous polyetherimide and (2) 20-50 weight parts inorg. flake filler (average particle size $\leq 15 \mu$

m, average aspect ratio ≥ 30). The circuit boards are prepared by alternately laminating the insulator layers and circuit layers and connecting the circuit layers through via holes. The insulator materials (1) prevents delamination in packaging and migration in glass cloth and (2) provides manufacturing simplification and storage stability of the thermosetting polymers.

ICM H05K003-46

ICS H05K003-46; C08K003-00; C08K007-00; C08L071-00; C08L079-08

CC 76-10 (Electric Phenomena)

Section cross-reference(s): 38, 56

ST polyaryl ketone polyetherimide thermoplastic polymer insulator multilayer circuit

IT Ketones, properties

RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)

(aromatic, poly-, for insulator materials; insulator materials and build-up multilayer printed circuit boards using materials thereof)

IT Electronic packaging materials
(delamination prevention in; insulator materials and build-up multilayer printed circuit boards using materials thereof)

IT Mica-group minerals, uses
RL: MOA (Modifier or additive use); USES (Uses)
(flaky filler; insulator materials and build-up multilayer printed circuit boards using materials thereof)

IT Diffusion
(in glass cloth, prevention of; insulator materials and build-up multilayer printed circuit boards using materials thereof)

IT Glass fiber fabrics
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(insulator substrate; insulator materials and build-up multilayer printed circuit boards using materials thereof)

IT Printed circuit boards
(multilayer; insulator materials and build-up multilayer printed circuit boards using materials thereof)

IT Polyimides, properties
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(polyether-, amorphous, for insulator materials; insulator materials and build-up multilayer printed circuit boards using materials thereof)

IT Polyethers, properties
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(polyimide-, amorphous, for insulator materials; insulator materials and build-up multilayer printed circuit boards using materials thereof)

IT Delamination
(prevention of; insulator materials and build-up multilayer printed circuit boards using materials thereof)

IT Plastics, properties
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(thermoplastics; insulator materials and build-up multilayer printed circuit boards using materials thereof)

IT Plastics, properties
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(thermosetting, storage stability in; insulator materials and build-up multilayer printed circuit boards using materials thereof)

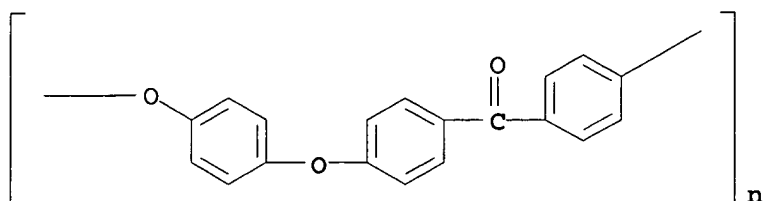
IT 31694-16-3, PEEK 450G
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(polyether ether ketone; insulator materials and build-up multilayer printed circuit boards using materials thereof)

IT 61128-24-3, Ultem 1000
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(polyether imide; insulator materials and build-up multilayer printed circuit boards using materials thereof)

IT 7440-50-8, Copper, properties
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(surface-roughened conductor film; insulator materials and build-up multilayer printed circuit boards using materials thereof)

IT 31694-16-3, PEEK 450G
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(polyether ether ketone; insulator materials and build-up multilayer printed circuit boards using materials thereof)

RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 9 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2002:67919 HCAPLUS

DN 136:295730

TI Microstructure characterization of laser treated surfaces

AU Buchman, A.; Kalil, C.; Dodiuk-Kenig, H.; Rotel, M.

CS RAFAEL, Haifa, 31021, Israel

SO Journal of Adhesion (2001), 77(2), 163-181

CODEN: JADNAJ; ISSN: 0021-8464

PB Gordon & Breach Science Publishers

DT Journal

LA English

AB Excimer laser UV radiation presents a new technol. for preadhesion surface treatment of various material adherends. The use of an ArF excimer laser (193 nm) for surface pretreatment of Lexan 9023-112 polycarbonate, Ultem 1000 polyether imide, APC-2/AS-4 graphite fiber-reinforced PEEK composite, 2024-T3 aluminum, copper, AZ 91 and AM 50 magnesium, F-4 fiberglass-reinforced epoxy resin, PZT piezoelec. wafer, and fused silica was studied. The UV laser surface treatment improved the adhesional strength significantly compared with conventionally treated substrates for all the materials tested. The improved adhesion correlated with changes in morphol. of the irradiated surface, chemical modification and removal of contaminants, which contributed to a strong and durable adhesive bond. Only the connection between the mech. and morphol. effect was studied. The most common microstructure features on the surface after laser irradiation (examined by SEM and AFM) were small conical structures randomly distributed on the irradiated areas. Other features were periodic surface ridges or flat smoothened areas with spread arrays of microcracks. All these morphologies increase the roughness of the surface, enabling mech. interlocking of the adhesive. The roughness is micron sized, and uniformly spread on the surface, which presents an advantage over abrasive treatments. The distribution of the features and their size were dependent on the laser parameters (intensity and number of pulses). Some mechanisms are presented, and these interesting phenomena are discussed.

CC 38-3 (Plastics Fabrication and Uses)

ST laser excimer irradsn surface treatment polymer; metal alloy surface treatment laser excimer irradsn; adhesion laser irradiated polymer metal alloy

IT Polycarbonates, uses

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)

IT Acrylic polymers, uses

Epoxy resins, uses

Polyurethanes, uses

Silicone rubber, uses

RL: TEM (Technical or engineered material use); USES (Uses)

- (adhesive; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)
- IT Adhesion, physical
Laser radiation
Polymer morphology
Surface structure
(excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)
- IT Epoxy resins, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(glass fiber-reinforced, adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)
- IT Polyimides, uses
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(polyether-, adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)
- IT Polyketones
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(polyether-, carbon fiber-reinforced, adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)
- IT Polyethers, uses
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(polyimide-, adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)
- IT Polyethers, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(polyketone-, carbon fiber-reinforced, adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)
- IT Epoxy resins, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(rubber-modified, adhesive; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)
- IT 238411-98-8, F-4
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)
- IT 7440-50-8, Copper, processes 25036-53-7, Kapton
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)
- IT 12616-84-1 12626-81-2, PZT 12634-54-7, AZ 91 61128-24-3, Ultem 1000

145684-19-1, AM 50 148937-43-3, Lexan 9023-112

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)

IT 60181-90-0, FM 73 115452-99-8, Hysol EA9394 126776-39-4, FM 300 2K 180616-03-9, LaRC-SI 407636-12-8, F 0011

RL: TEM (Technical or engineered material use); USES (Uses)

(adhesive; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)

IT 31694-16-3, APC-2

RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(carbon fiber-reinforced, adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)

IT 56617-31-3, Argon fluoride (ArF)

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)

(excimer laser; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)

IT 60676-86-0, Fused silica

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(glass fiber-reinforced, adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)

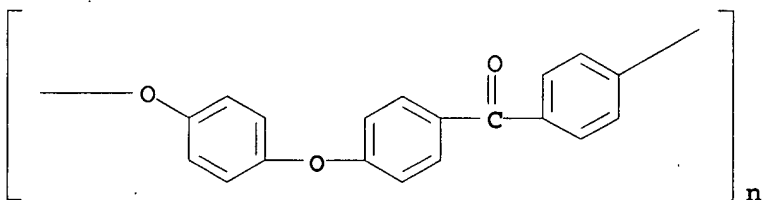
IT 31694-16-3, APC-2

RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(carbon fiber-reinforced, adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 10 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2001:437366 HCAPLUS

DN 135:181334

TI A small area XPS study of the fracture surface of a thermoplastic-modified CFRP

AU Vickers, P. E.; Fitzpatrick, M. F.; Boniface, L.; Watts, J. F.

- CS School of Mechanical and Materials Engineering, University of Surrey,
Surrey, GU2 7XH, UK
- SO Journal of Materials Science (2001), 36(9), 2323-2327
CODEN: JMTSAS; ISSN: 0022-2461
- PB Kluwer Academic Publishers
- DT Journal
- LA English
- AB Small area XPS at a spatial resolution of 30 μ
m has been used to study the heterogeneity of the fracture surface
of a carbon fiber/epoxy composite with thermoplastic
PEEK particles incorporated at the interlaminar boundary. Strong
evidence was found for a chemical interaction between the PEEK
particles and the matrix, in particular the curing agent. Careful charge
compensation was required, particularly for the non-conducting
PEEK particles alone which had been mounted on insulating adhesive
tape, in order to produce a high quality spectrum. It was also observed
that, for the fracture surfaces, the application of low energy electrons
was successful in eliminating the differential charging observed during the
simultaneous anal. of matrix and particle (insulating), or matrix and
fiber (conducting).
- CC 37-5 (Plastics Manufacture and Processing)
- ST fracture surface morphol thermoplastic modified carbon fiber
epoxy composite; PEEK modified carbon fiber epoxy composite
fracture surface
- IT Carbon fibers, properties
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(Toray T 300; small-area XPS study of fracture surface of a
thermoplastic PEEK-modified carbon fiber-reinforced epoxy
resin composite)
- IT Polymer morphology
(fracture-surface; small-area XPS study of fracture surface of a
thermoplastic PEEK-modified carbon fiber-reinforced epoxy
resin composite)
- IT Polyketones
RL: MOA (Modifier or additive use); USES (Uses)
(polyether-, aromatic; small-area XPS study of fracture surface of a
thermoplastic PEEK-modified carbon fiber-reinforced epoxy
resin composite)
- IT Polyethers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(polyketone-, aromatic; small-area XPS study of fracture surface of a
thermoplastic PEEK-modified carbon fiber-reinforced epoxy
resin composite)
- IT Fracture surface morphology
(polymeric; small-area XPS study of fracture surface of a thermoplastic
PEEK-modified carbon fiber-reinforced epoxy resin composite)
- IT X-ray photoelectron spectra
(small-area XPS study of fracture surface of a thermoplastic
PEEK-modified carbon fiber-reinforced epoxy resin composite)
- IT Epoxy resins, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(small-area XPS study of fracture surface of a thermoplastic
PEEK-modified carbon fiber-reinforced epoxy resin composite)
- IT 31694-16-3, PEEK
RL: MOA (Modifier or additive use); USES (Uses)
(Vitrex; small-area XPS study of fracture surface of a thermoplastic
PEEK-modified carbon fiber-reinforced epoxy resin composite).
- IT 63804-34-2
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(small-area XPS study of fracture surface of a thermoplastic

PEEK-modified carbon fiber-reinforced epoxy resin composite)
RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 11 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:194452 HCAPLUS
DN 135:167587
TI Effects of processing conditions on the mechanical behavior of
carbon-fiber-reinforced PEEK
AU El Kadi, H.; Denault, J.
CS Mechanical Engineering Department, American University of Sharjah,
Sharjah, United Arab Emirates
SO Journal of Thermoplastic Composite Materials (2001), 14(1),
34-53
CODEN: JTMAEQ; ISSN: 0892-7057
PB Technomic Publishing Co., Inc.
DT Journal
LA English
AB The static and fatigue characteristics of AS4/PEEK laminates were
investigated. Coupons machined from plaques obtained using various
molding conditions were tested under monotonic tensile, short beam shear,
and 3-point flexural fatigue loading. Varying the manufacturing conditions was
seen to significantly affect the interlaminar shear strength of the
composites, with higher values obtained for the highly crystalline specimens.
While for multidirectional laminates the manufacturing conditions seemed to
mostly affect the yield stress and the strain and stress to failure, these
conditions seem to have only a minor effect on the tensile properties for
specimens with unidirectional configurations. The results obtained under
fatigue loading, although preliminary, did not show significant dependence
on manufacturing parameters.
CC 38-2 (Plastics Fabrication and Uses)
Section cross-reference(s): 37
ST molding carbon fiber PEEK polymer mech property; polyether polyketone
carbon fiber molding morphol strength
IT Fatigue, mechanical
(flexural; molding condition effects on mech. behavior of carbon
fiber-reinforced PEEK)
IT Polymer morphology
(fracture-surface; molding condition effects on mech. behavior of
carbon fiber-reinforced PEEK)
IT Carbon fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(graphite, AS-4; molding condition effects on mech. behavior of carbon
fiber-reinforced PEEK)
IT Shear strength
(interlaminar; molding condition effects on mech. behavior of carbon
fiber-reinforced PEEK)
IT Crystallinity
Molding of plastics and rubbers
Tensile strength
(molding condition effects on mech. behavior of carbon fiber-reinforced
PEEK)
IT Polyketones
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyether-; molding condition effects on mech. behavior of carbon
fiber-reinforced PEEK)
IT Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyketone-; molding condition effects on mech. behavior of carbon
fiber-reinforced PEEK)

IT Fracture surface morphology
(polymeric; molding condition effects on mech. behavior of carbon fiber-reinforced PEEK)

IT Polymer morphology
(spherulitic; molding condition effects on mech. behavior of carbon fiber-reinforced PEEK)

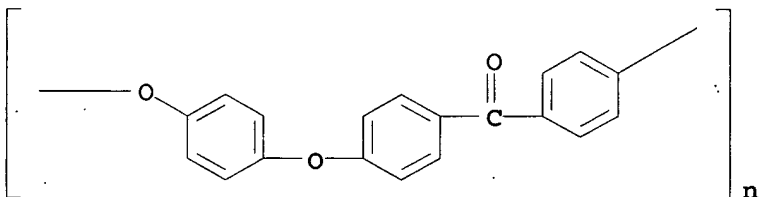
IT Stress, mechanical
(yield; molding condition effects on mech. behavior of carbon fiber-reinforced PEEK)

IT 31694-16-3, APC-2
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(carbon fiber-reinforced; molding condition effects on mech. behavior of carbon fiber-reinforced PEEK)

IT 31694-16-3, APC-2
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(carbon fiber-reinforced; molding condition effects on mech. behavior of carbon fiber-reinforced PEEK)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 12 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2001:124291 HCAPLUS

DN 134:179636

TI Lubricious polymer compositions and seal rings with good abrasion resistance against aluminum alloys

IN Ishii, Takuya; Oki, Yoshio; Ito, Kenji; Hirata, Masakazu; Kubota, Kazunori
PA Ntn Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001049111	A	20010220	JP 2000-160705	20000530 <--
PRAI	JP 1999-152360	A	19990531	<--	

AB The comps. contain aromatic polyether ketones, carbon fibers, inorg. compds. having Mohs hardness ≤ 3 , and tetrafluoroethylene polymers. The seal rings are useful for hydraulic machines. Thus, a ring comprising PEEK 450P (aromatic polyether ketone) 70, Besfight HTA-CMF 0160-0H (carbon fiber) 10, MOS HIGE (fibrous MgSO) 10, and KTL 610 (polytetrafluoroethylene) 10 parts showed abrasion loss 10 μm against ADC 12 (Al alloy) shaft (110° oil, 64 m/min circumference speed, under 2 MPa for 5 h).

IC ICM C08L071-00

ICS C08J005-16; C08K003-00; C08K003-04; C08K003-30; C08K007-04;

C10M107-32; C10M107-38; C10M125-02; C10M135-10; F16J015-20;
C08L071-00; C08L027-18; C10N040-02; C10N040-04

CC 38-3 (**Plastics** Fabrication and Uses).

Section cross-reference(s): 56

ST polyether polyketone polytetrachloroethylene lubricious seal ring;
abrasion resistance polyether polyketone magnesium oxysulfate; carbon
fiber polyether polyketone seal ring; aluminum alloy polyether
polyketone seal ring; hydraulic machine seal ring polyether polyketone

IT Carbon **fibers**, uses

RL: DEV (Device component use); MOA (Modifier or additive use); USES
(Uses)

(Kureca M 101T; lubricious polymer compns. for seal rings with good
abrasion resistance for aluminum alloys)

IT Synthetic **fibers**

RL: DEV (Device component use); MOA (Modifier or additive use); USES
(Uses)

(calcium sulfate, Franklin **Fiber** A 30; lubricious polymer
compns. for seal rings with good abrasion resistance for aluminum
alloys)

IT Abrasion-resistant materials

(lubricious polymer compns. for seal rings with good abrasion
resistance for aluminum alloys)

IT Fluoropolymers, uses

RL: DEV (Device component use); USES (Uses)

(lubricious polymer compns. for seal rings with good abrasion
resistance for aluminum alloys)

IT Synthetic **fibers**

RL: DEV (Device component use); MOA (Modifier or additive use); USES
(Uses)

(magnesium oxysulfate, MOS HIGE; lubricious polymer compns. for seal
rings with good abrasion resistance for aluminum alloys)

IT Carbon **fibers**, uses

RL: DEV (Device component use); MOA (Modifier or additive use); USES
(Uses)

(pitch-based; lubricious polymer compns. for seal rings with good
abrasion resistance for aluminum alloys)

IT Carbon **fibers**, uses

RL: DEV (Device component use); MOA (Modifier or additive use); USES
(Uses)

(polyacrylonitrile-based; lubricious polymer compns. for seal rings
with good abrasion resistance for aluminum alloys)

IT Polyketones

RL: DEV (Device component use); POF (Polymer in formulation); PRP
(Properties); USES (Uses)

(polyether-, aromatic; lubricious polymer compns. for seal rings with good
abrasion resistance for aluminum alloys)

IT Polyethers, uses

RL: DEV (Device component use); POF (Polymer in formulation); PRP
(Properties); USES (Uses)

(polyketone-, aromatic; lubricious polymer compns. for seal rings with
good abrasion resistance for aluminum alloys)

IT Seals (parts)

(ring; lubricious polymer compns. for seal rings with good abrasion
resistance for aluminum alloys)

IT Aluminum alloy, base

RL: MSC (Miscellaneous)

(lubricious polymer compns. for seal rings with good abrasion
resistance for)

IT 7778-18-9 9002-84-0, KTL 610 98668-15-6, Magnesium oxysulfate

RL: DEV (Device component use); MOA (Modifier or additive use); USES

(Uses)

(lubricious polymer compns. for seal rings with good abrasion resistance for aluminum alloys)

IT 31694-16-3, PEEK 450P

RL: DEV (Device component use); POF (Polymer in formulation); PRP (Properties); USES (Uses)

(lubricious polymer compns. for seal rings with good abrasion resistance for aluminum alloys)

L39 ANSWER 13 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2000:780286 HCAPLUS

DN 134:42808

TI The influence of crystallinity on interfacial properties of carbon and SiC two-fiber/polyetheretherketone (PEEK) composites

AU Park, Joung-Man; Kim, Dae-Sik

CS Department of Polymer Science & Engineering Research Center for Aircraft Parts Technology, Gyeongsang National University, Jinju, 660-701, S. Korea

SO Polymer Composites (2000), 21(5), 789-797

CODEN: PCOMDI; ISSN: 0272-8397

PB Society of Plastics Engineers

DT Journal

LA English

AB The influence of the degree of crystallinity on interfacial properties in carbon and SiC two-fiber reinforced PEEK composites was investigated by the two-fiber fragmentation test. This method provides a direct comparison of the same matrix conditions. The tensile strength of the PEEK matrix and the interfacial shear strength (IFSS) of carbon or SiC fiber/PEEK exhibited the maximum values at around 30% crystallinity, and then showed a decline. The tensile modulus increased continuously with an increase in the degree of crystallinity. Spherulite sizes in the PEEK matrix became larger as the cooling time from the crystallization temperature

increased. Transcrystallinity of carbon fiber/PEEK was developed easily and more densely than with SiC fiber/PEEK. This might have occurred because the unit cell dimensions of the crystallite in the fiber axis direction on the carbon surface was more suitable for making nucleation sites. The IFSS of carbon fiber/PEEK was significantly higher than that of SiC fiber/PEEK because it formed transcrystallinity to IFSS more favorably.

CC 37-5 (Plastics Manufacture and Processing)

ST crystallinity fiber reinforced PEEK interfacial property; carbon fiber reinforced PEEK interfacial property; silicon carbide fiber reinforced PEEK composite; transcrystallinity fiber reinforced PEEK composite; morphol fiber reinforced PEEK composite

IT Crystallinity

Elongation, mechanical

Polymer morphology

Stress-strain relationship

Tensile strength

(effect of crystallinity on interfacial properties of carbon and silicon carbide fiber-reinforced PEEK composites)

IT Carbon fibers, uses

RL: MOA (Modifier or additive use); USES (Uses)

(effect of crystallinity on interfacial properties of carbon and silicon carbide fiber-reinforced PEEK composites)

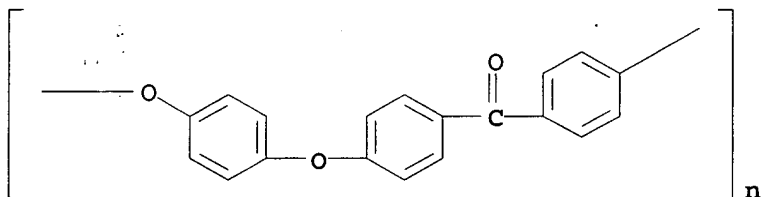
IT Shear strength

(interfacial; effect of crystallinity on interfacial properties of carbon and silicon carbide fiber-reinforced PEEK composites)

IT Polyketones

RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)

- (polyether-; effect of crystallinity on interfacial properties of carbon and silicon carbide fiber-reinforced PEEK composites)
- IT Polyethers, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyketone-; effect of crystallinity on interfacial properties of carbon and silicon carbide fiber-reinforced PEEK composites)
- IT Synthetic fibers
RL: MOA (Modifier or additive use); USES (Uses)
(silicon carbide, Nicalon fiber; effect of crystallinity on interfacial properties of carbon and silicon carbide fiber-reinforced PEEK composites)
- IT Crystallinity
(transcrystallinity; effect of crystallinity on interfacial properties of carbon and silicon carbide fiber-reinforced PEEK composites)
- IT 31694-16-3, PEEK
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(effect of crystallinity on interfacial properties of carbon and silicon carbide fiber-reinforced PEEK composites)
- IT 409-21-2, Silicon carbide, uses
RL: MOA (Modifier or additive use); USES (Uses)
(fiber; effect of crystallinity on interfacial properties of carbon and silicon carbide fiber-reinforced PEEK composites)
- IT 31694-16-3, PEEK
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(effect of crystallinity on interfacial properties of carbon and silicon carbide fiber-reinforced PEEK composites)
- RN 31694-16-3 HCAPLUS
- CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)

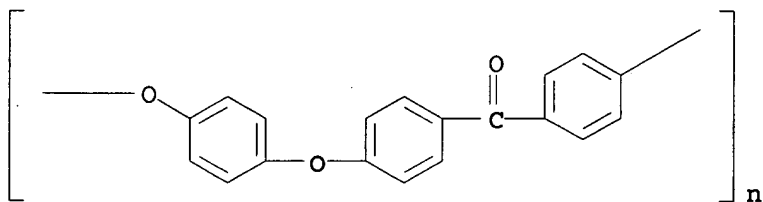


RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 14 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:582226 HCAPLUS
DN 134:87195
TI PEEK/carbon fiber composites: An evaluation of particle size and processing method on composite properties
AU Bullions, T. A.; Morin, J.; Mehta, R. H.; Loos, A. C.
CS Department of Engineering Science and Mechanics, Virginia Polytechnic Institute and State University, Blacksburg, VA, 24061-0219, USA
SO Annual Technical Conference - Society of Plastics Engineers (2000), 58th(Vol. 2), 2309-2313
CODEN: ACPED4; ISSN: 0272-5223
PB Society of Plastics Engineers
DT Journal
LA English
AB This study examines the effects of particle size on the consolidation quality and mech. performance of carbon fiber-reinforced composites fabricated from dry powder coated carbon fiber tow (towpreg). Poly(ether

ether ketone) (PEEK) powder was sieved to produce three different particle size distributions; a minimal polymer powder deposition system was used to coat carbon fiber tow with these distributions and unsieved polymer. Unidirectional composite panels were manufactured from these four batches of towpreg and APC-2 (PEEK / AS4) prepreg using an identical processing schedule. Poor consolidation quality of some panels limited conclusions. However, these results did bring forward several questions concerning the effects of powder particle size distribution on the processing of composites from PEEK/G30-500 towpreg that may be addressed in future studies.

CC 38-3 (Plastics Fabrication and Uses)
ST PEEK carbon fiber prepreg particle size
IT Agglomeration
Particle size
Particle size distribution
(effect of particle size on consolidation and mech. properties of PEEK powder-coated carbon fiber tow)
IT Carbon fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(effect of particle size on consolidation and mech. properties of PEEK powder-coated carbon fiber tow)
IT Polyketones
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-; effect of particle size on consolidation and mech. properties of PEEK powder-coated carbon fiber tow)
IT Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyketone-; effect of particle size on consolidation and mech. properties of PEEK powder-coated carbon fiber tow)
IT 31694-16-3, PEEK
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(effect of particle size on consolidation and mech. properties of PEEK powder-coated carbon fiber tow)
IT 31694-16-3, PEEK
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(effect of particle size on consolidation and mech. properties of PEEK powder-coated carbon fiber tow)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 15 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:474610 HCAPLUS

DN 133:90482

TI Aromatic polyether-polyketone-based semiconductor wafer carriers

IN Yanagihara, Kayako; Yoshimura, Shoji; Sato, Takashi

PA Mitsui Chemicals Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000195938	A	20000714	JP 1998-367854	19981224 <--
PRAI	JP 1998-367854		19981224 <--		

AB The title wafer carriers, with stable surface resistivity, are prepared from 60-90% aromatic polyether-polyketones (e.g., Victrex PEEK 450P, Victrex PEEK 150P) and 10-40% high-elec. resistance carbon fibers with average diameter 3-25 .mu.m, average length 50-70,000 .mu.m, and surface resistivity 106-1012 Ω , by melt forming, injection molding, extrusion molding, and optionally cutting.

IC ICM H01L021-68

ICS C08K007-06; C08L071-12

CC 38-3 (Plastics Fabrication and Uses)

ST polyether polyketone carbon fiber reinforced molding; wafer carrier arom polyether polyketone molding; surface resistivity arom polyether polyketone molding

IT Cutting

Electric resistance

Extrusion of plastics and rubbers

Surface resistance

(aromatic polyether-polyketone-based semiconductor wafer carriers)

IT Extruded plastics

Molded plastics, uses

RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(aromatic polyether-polyketone-based semiconductor wafer carriers)

IT Carbon fibers, uses

RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(high-elec. resistance; aromatic polyether-polyketone-based semiconductor wafer carriers)

IT Molding of plastics and rubbers

(injection; aromatic polyether-polyketone-based semiconductor wafer carriers)

IT Polyketones

Polyketones

RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(polyether-, aromatic, carbon fiber-reinforced moldings; aromatic polyether-polyketone-based semiconductor wafer carriers)

IT Polyethers, uses

Polyethers, uses

RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(polyketone-, aromatic, carbon fiber-reinforced moldings; aromatic polyether-polyketone-based semiconductor wafer carriers)

IT Molding of plastics and rubbers

(thermoforming; aromatic polyether-polyketone-based semiconductor wafer carriers)

IT Semiconductor materials

(wafer carriers; aromatic polyether-polyketone-based semiconductor wafer carriers)

IT 31694-16-3, Victrex PEEK 450P

RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(carbon fiber-reinforced moldings; aromatic polyether-polyketone-based semiconductor wafer carriers)

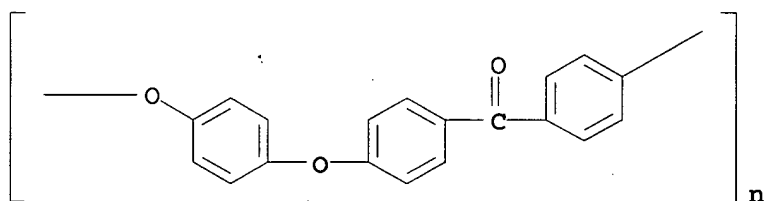
IT 31694-16-3, Victrex PEEK 450P

RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(carbon fiber-reinforced moldings; aromatic polyether-polyketone-based semiconductor wafer carriers)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 16 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2000:474607 HCAPLUS

DN 133:90479

TI Aromatic polyether-polyketone-based spinner chucks

IN Yanagihara, Kayako; Yoshimura, Shoji; Sato, Takashi

PA Mitsui Chemicals Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000195932	A	20000714	JP 1998-367848	19981224 <--
PRAI	JP 1998-367848		19981224 <--		

AB The title spinner chucks, with stable surface resistivity, are prepared from 60-90% aromatic polyether-polyketones (e.g., Victrex PEEK 450P, Victrex PEEK 150P) and 10-40% high-elec. resistance carbon fibers with average diameter 3-25 .mu.m, average length 50-70,000 .mu.m, and surface resistivity 106-1012 Ω , by melt forming, injection molding, extrusion molding, and optionally shaving.

IC ICM H01L021-68

ICS C08K007-06; C08L071-10

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 76

ST polyether polyketone carbon fiber reinforced molding; spinner chuck arom polyether polyketone molding; surface resistivity arom polyether polyketone molding

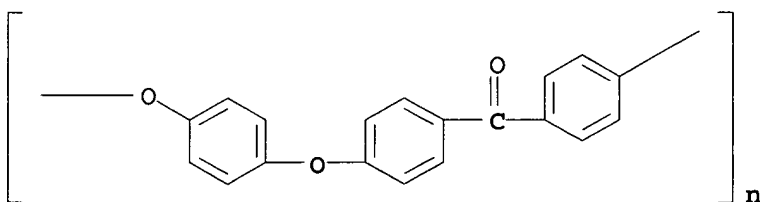
IT Cutting

Electric resistance

Extrusion of plastics and rubbers

Surface resistance

- (aromatic polyether-polyketone-based spinner chucks)
- IT Extruded plastics
Molded plastics, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(aromatic polyether-polyketone-based spinner chucks)
- IT Spinning apparatus
(chucks; aromatic polyether-polyketone-based spinner chucks)
- IT Carbon **fibers**, uses
RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(high-elec. resistance; aromatic polyether-polyketone-based spinner chucks)
- IT Molding of plastics and rubbers
(injection; aromatic polyether-polyketone-based spinner chucks)
- IT Polyketones
Polyketones
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-, aromatic, carbon **fiber**-reinforced moldings; aromatic polyether-polyketone-based spinner chucks)
- IT Polyethers, uses
Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyketone-, aromatic, carbon **fiber**-reinforced moldings; aromatic polyether-polyketone-based spinner chucks)
- IT Molding of plastics and rubbers
(thermoforming; aromatic polyether-polyketone-based spinner chucks)
- IT 31694-16-3, Victrex PEEK 450P
RL: **POF (Polymer in formulation)**; PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(carbon **fiber**-reinforced moldings; aromatic polyether-polyketone-based spinner chucks)
- IT 31694-16-3, Victrex PEEK 450P
RL: **POF (Polymer in formulation)**; PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(carbon **fiber**-reinforced moldings; aromatic polyether-polyketone-based spinner chucks)
- RN 31694-16-3 HCAPLUS
- CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 17 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2000:470434 HCAPLUS

DN 133:90252

TI **Fiber-reinforced polyether ether ketone resin composition for extrudate with good surface resistivity**

IN Yanagihara, Kayako; Yoshimura, Shoji; Sato, Takashi

PA Mitsui Chemicals Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000191901	A	20000711	JP 1998-367849	19981224 <--
PRAI	JP 1998-367849		19981224 <--		
AB	The composition, for preparation of extrudate, e.g., liquid crystal displays and semiconductor devices, having dispersion of surface resistivity 106-1012 Ω , comprises 60-90% a polyether ether aromatic ketone (PEEK 450P) and 10-40% carbon fibers having average diameter 3-25 .mu and average length 50-70000 .mu.m.				
IC	ICM C08L071-08				
	ICS B23C003-12; B29C045-00; B29C047-00; C08K007-06; B29K061-00; B29K071-00; B29K105-12; B29L031-34				
CC	37-6 (Plastics Manufacture and Processing) Section cross-reference(s): 76				
ST	carbon fiber reinforced PEEK surface resistivity; polyether ether ketone semiconductor device; liq crystal display fiber reinforced PEEK				
IT	Liquid crystal displays Semiconductor devices Surface resistance (fiber-reinforced polyether ether ketone resin composition for extrudate with good surface resistivity)				
IT	Carbon fibers, uses RL: MOA (Modifier or additive use); USES (Uses) (fiber-reinforced polyether ether ketone resin composition for extrudate with good surface resistivity)				
IT	Reinforced plastics RL: MOA (Modifier or additive use); USES (Uses) (fiber-reinforced; fiber-reinforced polyether ether ketone resin composition for extrudate with good surface resistivity)				
IT	Polyketones Polyketones RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (polyether-; fiber-reinforced polyether ether ketone resin composition for extrudate with good surface resistivity)				
IT	Polyethers, properties Polyethers, properties RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (polyketone-; fiber-reinforced polyether ether ketone resin composition for extrudate with good surface resistivity)				
IT	31694-16-3, 1,4-Diphenoxybenzene-phosgene copolymer, SRU 97385-15-4, 1,4-Diphenoxybenzene-phosgene copolymer RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (fiber-reinforced polyether ether ketone resin composition for extrudate with good surface resistivity)				
L39	ANSWER 18 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN				
AN	2000:465025 HCAPLUS				
DN	133:90415				
TI	Carbon fiber-reinforced polyether-aromatic ketone moldings				

IN Yanagihara, Kayako; Yoshimura, Shoji; Sato, Takashi

PA Mitsui Chemicals Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000191796	A	20000711	JP 1998-367850	19981224 <--
PRAI	JP 1998-367850		19981224 <--		
AB	The moldings have surface resistivity (of cut area) 106-1012 Ω -cm and comprise 60-90% polyether-aromatic ketones having repeating units of p-C ₆ H ₄ OC ₆ H ₄ (:O) and 10-40% C fibers with average fiber diameter 3-25 μ m, average fiber length 50-70,000 μ m, and preferably volume sp. resistivity 10-2-103 Ω -cm. The moldings are especially suitable for containers for glass substrates for LCD fabrication. Thus, 80 parts of a polyether-aromatic ketone (PEEK P 22) and 20 parts of a C black with volume sp. resistivity 1 + 101 Ω -cm (Xylus GCA) were kneaded at 390-410°, pelletized, and injection-molded to give test pieces having small variation in surface sp. resistivities of molding surfaces and cutting areas, resp.				
IC	ICM C08J005-00				
	ICS C08K007-06; C08L071-00				
CC	38-3 (Plastics Fabrication and Uses)				
	Section cross-reference(s): 57, 74				
ST	carbon fiber reinforced polyether arom ketone molding; liq cryst display glass substrate container				
IT	Carbon fibers, uses				
	RL: MOA (Modifier or additive use); USES (Uses)				
	(Xylus GCA; carbon fiber-reinforced polyether-aromatic ketone moldings having controlled surface resistivity)				
IT	Containers				
	(carbon fiber-reinforced polyether-aromatic ketone moldings having controlled surface resistivity for containers for glass substrates used in LCD fabrication)				
IT	Reinforced plastics				
	RL: TEM (Technical or engineered material use); USES (Uses)				
	(carbon fiber-reinforced; carbon fiber-reinforced polyether-aromatic ketone moldings having controlled surface resistivity for containers for)				
IT	Plate glass				
	RL: TEM (Technical or engineered material use); USES (Uses)				
	(for LCD; carbon fiber-reinforced polyether-aromatic ketone moldings having controlled surface resistivity for containers for)				
IT	Polyketones				
	Polyketones				
	RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)				
	(polyether-, aromatic; carbon fiber-reinforced polyether-aromatic ketone moldings having controlled surface resistivity)				
IT	Polyethers, uses				
	Polyethers, uses				
	RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)				
	(polyketone-, aromatic; carbon fiber-reinforced polyether-aromatic ketone moldings having controlled surface resistivity)				
IT	27380-27-4, Victrex PEK 22P				
	RL: PRP (Properties); TEM (Technical or engineered material use); USES				

(Uses)

(carbon **fiber**-reinforced polyether-aromatic ketone moldings
having controlled surface resistivity)

L39 ANSWER 19 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2000:465024 HCAPLUS

DN 133:90414

TI Carbon **fiber**-reinforced polyether-aromatic ketone moldings

IN Yanagihara, Kayako; Yoshimura, Shoji; Sato, Takashi

PA Mitsui Chemicals Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000191795	A	20000711	JP 1998-367847	19981224 <--
PRAI	JP 1998-367847		19981224	<--	
AB	The moldings have surface resistivity (of cut area) 106-1012 Ω -cm and comprise 60-90% polyether-aromatic ketones having repeating units of p-C ₆ H ₄ OC ₆ H ₄ OC ₆ H ₄ C(:O) and 10-40% C fibers with average fiber diameter 3-25 μ m, average fiber length 50-70,000 μ m, and preferably volume sp. resistivity 10-2-103 Ω -cm. The moldings are especially suitable for containers for glass substrates for LCD fabrication. Thus, 80 parts of a polyether-aromatic ketone (PEEK 450P) and 20 parts of a C black with volume sp. resistivity 1 + 101 Ω -cm (Xylus GCA) were kneaded at 380-400°, pelletized, and injection-molded to give test pieces having surface sp. resistivity of molding surfaces 1010-1012 Ω -cm and of cutting areas 1010-1011 Ω -cm.				
IC	ICM C08J005-00				
	ICS C08K007-06; C08L071-00				
CC	38-3 (Plastics Fabrication and Uses)				
	Section cross-reference(s): 57, 74				
ST	carbon fiber reinforced polyether arom ketone molding; liq cryst display glass substrate container				
IT	Carbon fibers , uses				
	RL: MOA (Modifier or additive use); USES (Uses)				
	(Xylus GCA; carbon fiber -reinforced polyether-aromatic ketone moldings having controlled surface resistivity)				
IT	Containers				
	(carbon fiber -reinforced polyether-aromatic ketone moldings having controlled surface resistivity for containers for glass substrates used in LCD fabrication)				
IT	Reinforced plastics				
	RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)				
	(carbon fiber -reinforced; carbon fiber -reinforced polyether-aromatic ketone moldings having controlled surface resistivity)				
IT	Plate glass				
	RL: TEM (Technical or engineered material use); USES (Uses)				
	(for LCD; carbon fiber -reinforced polyether-aromatic ketone moldings having controlled surface resistivity for containers for)				
IT	Polyketones				
	Polyketones				
	RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)				
	(polyether-, aromatic; carbon fiber -reinforced polyether-aromatic ketone moldings having controlled surface resistivity)				

IT Polyethers, uses
Polyethers, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES
(Uses)

(polyketone-, aromatic; carbon **fiber**-reinforced polyether-aromatic
ketone moldings having controlled surface resistivity)

IT 31694-16-3, PEEK 450P

RL: PRP (Properties); TEM (Technical or engineered material use); USES
(Uses)

(carbon **fiber**-reinforced polyether-aromatic ketone moldings
having controlled surface resistivity)

L39 ANSWER 20 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1999:439253 HCAPLUS

DN 131:103171

TI Ceramic-filled fluoropolymer composite containing polymeric powder for
high frequency circuit substrates

IN Horn, Allen F., III; Traskos, Richard R.; Allen, David A.

PA Rogers Corporation, USA

SO U.S., 9 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

PATENT NO.

KIND

DATE

APPLICATION NO.

DATE

PI US 5922453

A

19990713

US 1997-795857

19970206 <--

PRAI US 1997-795857

19970206 <--

AB Ceramic-filled fluoropolymer composites, suitable for use as elec.
substrate materials, contain a fluoropolymer matrix, at least one ceramic
particulate material, and a high-temperature, high-modulus, finely powdered
polymer

having a particle size of less than about 200 μm . Substitution of the
finely powdered polymeric material for the fluoropolymer matrix within a
fairly narrow concentration range (e.g., 2-30 volume %) results in a composite
with

enhanced flexural modulus but no deleterious effect on dielec. loss. The
composite material is plated or clad with conductive material for use in
circuit boards. Thus, Victrex 150XF PEEK with a mean
particle size of 20 μm

was added to a standard ceramic powder-filled formulation containing 44.5
volume %

PTFE and 55.5 volume % silica/titania filler. Sheets of the composition were
baked for 8 h at 550° and laminated to copper. When compared with
the standard formulation, the substitution of 20 volume % PEEK for
PTFE increased the flexural modulus by a factor of 3 to 4, and more than
doubled the yield stress. Except for an increase in $\tan \delta$ values,
the substitution of PEEK for PTFE did not have any particularly
deleterious effect on laminate properties. Ultem 1000 poly(ether imide)
and a Xydar liquid crystalline polyester were also used to substitute PTFE in
standard ceramic-filled formulation.

IC ICM B32B027-04

ICS B32B027-06; B32B027-20; B32B027-28

INCL 428325000

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 76

ST ceramic filled fluoropolymer circuit board; PEEK ceramic filled
fluoropolymer circuit board

IT Dielectric loss

Electric insulators

Printed circuit boards

(addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT Fluoropolymers, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT Glass fibers, uses

RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)

(filler; addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT Glass spheres

RL: TEM (Technical or engineered material use); USES (Uses)

(filler; addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT Mechanical properties

(flexural modulus; addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT Polyesters, uses

RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)

(liquid-crystalline, Xydar; addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT Perfluoro compounds

Perfluoro compounds

Vinyl compounds, uses

Vinyl compounds, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(perfluoroalkyl vinyl ether polymers, with tetrafluoroethylene; addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT Ethers, uses

Ethers, uses

Ethers, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(perfluoroalkyl vinyl, polymers, with tetrafluoroethylene; addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT Polyimides, uses

Polyimides, uses

Polyketones

Polyketones

RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)

(polyether-; addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT Polyethers, uses

Polyethers, uses

RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)

(polyimide-; addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT Polyethers, uses

Polyethers, uses

RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)

(polyketone-; addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT 9002-84-0

RL: DEV (Device component use); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT 31694-16-3, Victrex PEEK 150XF 61128-24-3, Ultem 1000

RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)

(addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT 116-14-3D, Tetrafluoroethylene, polymers with perfluoroalkyl vinyl ethers

9002-83-9, Chlorotrifluoroethylene homopolymer 25038-71-5,

Ethylene-tetrafluoroethylene copolymer 25067-11-2 25101-45-5,

Chlorotrifluoroethylene-ethylene copolymer

RL: TEM (Technical or engineered material use); USES (Uses)

(addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT 409-21-2, Silicon carbide, uses 1302-74-5, Corundum, uses 1304-56-9,

Beryllia, uses 1309-48-4, Magnesia, uses 7631-86-9, Silica, uses

10043-11-5, Boron nitride, uses 12047-27-7, Barium titanate, uses

12047-64-2, Barium titanium oxide (Ba₂Ti₉O₂₀) 12049-50-2, Calcium

titanate 12060-59-2, Strontium titanate 13463-67-7, Titanium dioxide,

uses 13983-17-0, Wollastonite 24304-00-5, Aluminum nitride

RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)

(filler; addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

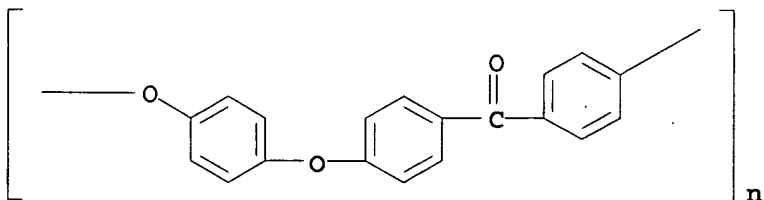
IT 31694-16-3, Victrex PEEK 150XF

RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)

(addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 21 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1999:276134 HCAPLUS
DN 131:45498
TI Influence of processing on morphology, interface, and delamination in
PEEK/carbon composites
AU Vu-Khanh, T.; Frikha, S.
CS Universite de Sherbrooke Fac. Sci. Appl./Genie Mecanique, Sherbrooke, QC,
J1K 2R1, Can.
SO Journal of Thermoplastic Composite Materials (1999), 12(2),
84-95
CODEN: JTMAEQ; ISSN: 0892-7057
PB Technomic Publishing Co., Inc.
DT Journal
LA English
AB The role of morphol. in the bulk matrix and at the carbon fiber-PEEK
matrix interphase on the composite performance was studied. The morphol.
of the matrix is observed by optical microscopy and compared with the anal.
results from DSC. The composite performance is investigated by Mode-I and
Mode-II delamination tests. The results show that the transcryst. region
strongly depends on the molding parameters and controls the fiber/matrix
interfacial strength in the composite. A better-defined
spherulite structure is observed with specific molding temperature and
residence time at melt temperature. The cooling rate also strongly affects the
fiber/matrix interaction and the transcryst. phase. The Mode-I
delamination performance is controlled mainly by the matrix morphol.,
whereas the Mode-II delamination resistance is related to the fiber/matrix
interfacial strength and the interphase structure in the composite.
CC 37-5 (Plastics Manufacture and Processing)
Section cross-reference(s): 38
ST molding morphol interface delamination PEEK composite; carbon fiber PEEK
composite molding property
IT Delamination
Interface
Molding of plastics and rubbers
Polymer morphology
(effect of processing on morphol., interface and delamination in
PEEK-carbon fiber composites)
IT Carbon fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(graphite; effect of processing on morphol., interface and delamination
in PEEK-carbon fiber composites)
IT Polyketones
Polyketones
RL: PEP (Physical, engineering or chemical process); POF (Polymer in
formulation); PRP (Properties); PROC (Process); USES (Uses)
(polyether-; effect of processing on morphol., interface and
delamination in PEEK-carbon fiber composites)
IT Polyethers, properties
Polyethers, properties
RL: PEP (Physical, engineering or chemical process); POF (Polymer in
formulation); PRP (Properties); PROC (Process); USES (Uses)
(polyketone-; effect of processing on morphol., interface and
delamination in PEEK-carbon fiber composites)
IT 31694-16-3, Victrex 150G 146837-45-8, NCS 1025
RL: PEP (Physical, engineering or chemical process); POF (Polymer in
formulation); PRP (Properties); PROC (Process); USES (Uses)

(effect of processing on morphol., interface and delamination in PEEK-carbon fiber composites)

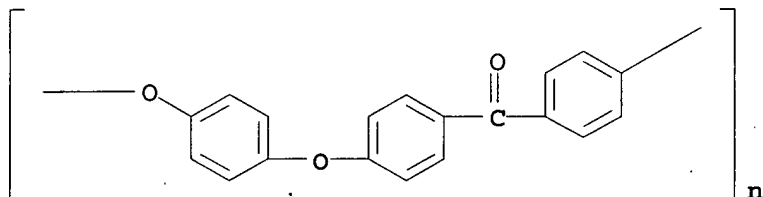
IT 31694-16-3, Victrex 150G

RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)

(effect of processing on morphol., interface and delamination in PEEK-carbon fiber composites)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 22 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1998:461756 HCAPLUS

DN 129:203603

TI A study of degree of crystallinity on the interfacial properties of carbon and SiC two-fiber reinforced poly(ether ether ketone)

AU Park, Joung-Man; Kim, Dae-Sik; Lee, Sang-Il

CS Dept. of Polymer Science & Engineering, Regional Research Center for Aircraft Parts Technology, Gyeongsang National University, Jinju, 660-701, S. Korea

SO Korea Polymer Journal (1998), 6(2), 200-209

CODEN: KPJOE2; ISSN: 1225-5947

PB Polymer Society of Korea

DT Journal

LA English

AB The effects of the degree of crystallinity in carbon and SiC two-fiber reinforced PEEK composites on their interfacial properties were investigated by two-fiber fragmentation test. This method can provide a direct comparison in a same matrix condition. Tensile strength of PEEK matrix and the interfacial shear strength (IFSS) of carbon or SiC fiber/PEEK exhibited maximum values at around 30% crystallinity, and then decreased. Tensile modulus increased continuously with an increase in the degree of crystallinity. Spherulite size of PEEK matrix became large as the cooling time from crystallization temperature increased. Transcrystallinity of carbon fiber/PEEK was induced more easily and developed more densely than SiC fiber/PEEK case. This may be because unit cell dimensions of crystallites in fiber axis direction on the carbon surface can be suitable for making nucleation sites. IFSS of carbon fiber/PEEK was significantly higher compared to that of SiC fiber/PEEK due to formed transcrystallinity contributing to IFSS favorably.

CC 37-5 (Plastics Manufacture and Processing)

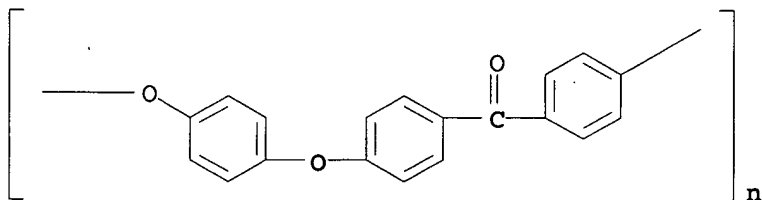
ST crystallinity interface fiber reinforced polyether polyketone; carbon fiber PEEK interface crystallinity; silicon carbide fiber PEEK interface crystallinity; transcrystallinity PEEK composite interface property

IT Carbon fibers, uses

RL: MOA (Modifier or additive use); USES (Uses)

(TZ-307; degree of crystallinity on interfacial properties of carbon

- fiber- and SiC fiber-reinforced PEEK)
- IT Crystallinity
Polymer morphology
Shear strength
Stress-strain relationship
Tensile strength
(degree of crystallinity on interfacial properties of carbon fiber- and SiC fiber-reinforced PEEK)
- IT Polyketones
Polyketones
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyether-; degree of crystallinity on interfacial properties of carbon fiber- and SiC fiber-reinforced PEEK)
- IT Polyethers, properties
Polyethers, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyketone-; degree of crystallinity on interfacial properties of carbon fiber- and SiC fiber-reinforced PEEK)
- IT Synthetic fibers
Synthetic fibers
RL: MOA (Modifier or additive use); USES (Uses)
(silicon oxycarbide, Nicalon; degree of crystallinity on interfacial properties of carbon fiber- and SiC fiber-reinforced PEEK)
- IT Crystallinity
(transcrystallinity; degree of crystallinity on interfacial properties of carbon fiber- and SiC fiber-reinforced PEEK)
- IT 409-21-2, Silicon carbide, uses
RL: MOA (Modifier or additive use); USES (Uses)
(degree of crystallinity on interfacial properties of carbon fiber- and SiC fiber-reinforced PEEK)
- IT 31694-16-3, PEEK
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(degree of crystallinity on interfacial properties of carbon fiber- and SiC fiber-reinforced PEEK)
- IT 31694-16-3, PEEK
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(degree of crystallinity on interfacial properties of carbon fiber- and SiC fiber-reinforced PEEK)
- RN 31694-16-3 HCAPLUS
- CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



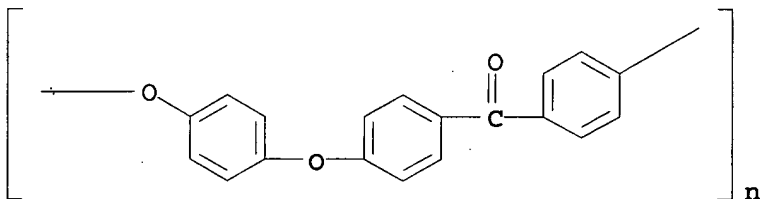
RE.CNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 23 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1998:167411 HCAPLUS
DN 128:168343
TI Hypervelocity impact damage to composite materials
AU Tennyson, R. C.; Shortliffe, G. D.

- CS University of Toronto Institute for Aerospace Studies, North York, ON, M3H 5T6, Can.
- SO International Conference on Composite Materials, Proceedings, 11th, Gold Coast, Australia, July 14-18, 1997 (1997), Volume 2, 474-484.
Editor(s): Scott, Murray L. Publisher: Australian Composite Structures Society, Melbourne, Australia.
CODEN: 65TEAE
- DT Conference
- LA English
- AB An exptl. program undertaken to study the impact damage of laminated graphite/PEEK plates and cylinders subjected to particle impacts at velocities ranging from 3 to 7 km/s was described. This velocity range corresponds to that found in space due to impacting micrometeoroids and space debris (MOD). To assess this problem, impact tests were conducted at three facilities in the U.S., with most of the tests undertaken at the NASA Johnson Space Center in Houston, using their two-stage light gas guns. Aluminum spheres were fired at composite material targets using various diams. and velocities to determine the damage correlation with energy, laminate thickness and material properties. Flat plate targets were first investigated to establish damage thresholds, followed by tests on laminated cylinders characteristic of the robot arm structures being designed for the Space Station. Correlations found in terms of impact crater size, front face total damage, rear face spallation damage and secondary damage resulting from the ejecta plume impacting the rear wall of the cylinder are discussed.
- CC 38-3 (Plastics Fabrication and Uses)
- ST hypervelocity impact damage PEEK composite; graphite fiber PEEK laminate impact damage
- IT Carbon fibers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(graphite, PEEK reinforced by; impact damage of laminated graphite fiber-reinforced PEEK plates and cylinders subjected to particle impacts at velocities corresponding to that found in space)
- IT Testing of materials
(impact; impact damage of laminated graphite fiber-reinforced PEEK plates and cylinders subjected to particle impacts at velocities corresponding to that found in space)
- IT Polyketones
Polyketones
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-, graphite fiber-reinforced; impact damage of laminated graphite fiber-reinforced PEEK plates and cylinders subjected to particle impacts at velocities corresponding to that found in space)
- IT Polyethers, uses
Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyketone-, graphite fiber-reinforced; impact damage of laminated graphite fiber-reinforced PEEK plates and cylinders subjected to particle impacts at velocities corresponding to that found in space)
- IT 31694-16-3, PEEK
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(graphite fiber-reinforced; impact damage of laminated graphite fiber-reinforced PEEK plates and cylinders subjected to particle impacts at velocities corresponding to that found in space)
- IT 31694-16-3, PEEK
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(graphite fiber-reinforced; impact damage of laminated
graphite fiber-reinforced PEEK plates and cylinders subjected
to particle impacts at velocities corresponding to that found in space)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX
NAME)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 24 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1998:147500 HCAPLUS

DN 128:218082

TI The effect of PEEK fibers and powder on joints made with a high
temperature adhesive

AU Dixon, D. G.; Harris, S. J.; Dempster, M.; Nicholls, P.

CS Sowerby Research Center, British Aerospace, Bristol, BS12 7QW, UK

SO Journal of Adhesion (1998), 65(1-4), 131-162

CODEN: JADNAJ; ISSN: 0021-8464

PB Gordon & Breach Science Publishers

DT Journal

LA English

AB High temperature adhesives typically exhibit low levels of peel strength since they tend to be more brittle than typical toughened adhesives used for lower temperature applications. It was found that incorporating thermoplastic fibers or powder into the bondline of a joint made with a high-temperature epoxy-based adhesive resulted in significant improvements in peel strength. Poly(ether ether ketone) (PEEK) fibers and powder were incorporated into the adhesive resin and used in aluminum joints. These were tested in peel and single lap shear using a range of fiber lengths, orientations, and volume fractions. Large increases in peel strength could be achieved but that lap shear strength was degraded with most types of modification. However, some modifications resulted in significant increases in peel strength with limited decrease in lap shear strength. These improved properties were achieved using phys. modifications rather than chemical alteration of the resin.

CC 38-3 (Plastics Fabrication and Uses)

ST epoxy adhesive PEEK additive adhesion aluminum

IT Adhesion, physical

Joints, mechanical

(PEEK fibers and powder effect on aluminum joints with high temperature
epoxy adhesive)

IT Epoxy resins, uses

RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)

(PEEK fibers and powder effect on aluminum joints with high temperature
epoxy adhesive)

IT Adhesives

(high-temperature; PEEK fibers and powder effect on aluminum joints with high temperature epoxy adhesive)

IT Polyketones
Polyketones
Polyketones
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyether-, fiber; PEEK fibers and powder effect on aluminum joints with high temperature epoxy adhesive)

IT Polyketones
Polyketones
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyether-; PEEK fibers and powder effect on aluminum joints with high temperature epoxy adhesive)

IT Synthetic polymeric fibers, uses
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyether-polyketones; PEEK fibers and powder effect on aluminum joints with high temperature epoxy adhesive)

IT Polyethers, uses
Polyethers, uses
Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyketone-, fiber; PEEK fibers and powder effect on aluminum joints with high temperature epoxy adhesive)

IT Polyethers, uses
Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyketone-; PEEK fibers and powder effect on aluminum joints with high temperature epoxy adhesive)

IT 204143-34-0, FM 350NA
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(PEEK fibers and powder effect on aluminum joints with high temperature epoxy adhesive)

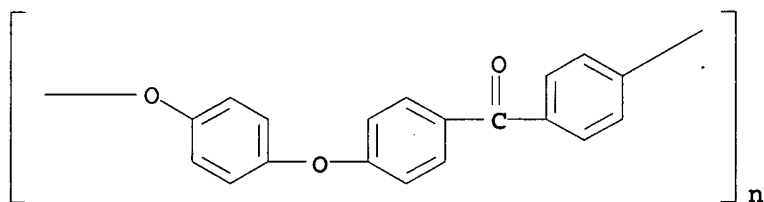
IT 12616-84-1
RL: PRP (Properties)
(PEEK fibers and powder effect on aluminum joints with high temperature epoxy adhesive)

IT 31694-16-3, PEEK
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(fibers; fibers and powder effect on aluminum joints with high temperature epoxy adhesive)

IT 31694-16-3, PEEK
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(fibers; fibers and powder effect on aluminum joints with high temperature epoxy adhesive)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 25 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1998:138130 HCAPLUS

DN 128:141582

TI Processing, morphology, interface and delamination in PEEK/carbon composites

AU Vu-Khanh, T.; Frikha, S.

CS Faculte des sciences appliquees / Genie mecanique, Universite de Sherbrooke, Sherbrooke, QC, J1K 2R1, Can.

SO Proceedings of the American Society for Composites, Technical Conference (1997), 12th, 912-921

CODEN: PAMTEG; ISSN: 1084-7243

PB Technomic Publishing Co., Inc.

DT Journal

LA English

AB It is well known that the mech. properties of thermoplastic composites depend upon processing parameters such as cooling rate, melting temperature and residence time at the melt temperature. This is due to the change in matrix morphol., fiber/matrix interaction and interphase structure with processing conditions. In previous works on carbon fiber/PEEK composites, it has been found that an increase in the melting temperature and the residence time improves the short-beam-shear strength of the composite, and increasing the cooling rate results in a decrease in this strength. Crystallinity at the interface appeared to be efficient only if there is a strong physicochem. interaction between the matrix and the fiber. Moreover, transcrystallinity does not seem to be the primary factor responsible for a good fiber/matrix interaction in thermoplastic composite materials. The purpose of this work is to foster the understanding of the role of morphol. in the bulk matrix and at the fiber/matrix interphase in the composite performance. The morphol. of the matrix is observed by optical microscopy and compared with the anal. results from differential scanning calorimetry (DSC). The composite performance is investigated by Mode I and Mode II delamination tests. The results show that the transcryst. region strongly depends on the molding parameters and controls the fiber/matrix interfacial strength in the composite. A better defined spherulite structure is observed with specific molding temperature and residence time at melt temperature. The cooling rate also strongly affects the fiber/matrix interaction and the transcryst. phase. The Mode I delamination performance is mainly controlled by the matrix morphol., whereas the Mode II delamination resistance is rather related to the fiber/matrix interfacial strength and the interphase structure in the composite.

CC 38-2 (Plastics Fabrication and Uses)

ST PEEK graphite fiber composite morphol delamination

IT Synthetic polymeric fibers, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(PEEK, nonwoven fabrics from graphite fibers and; effect of temperature, residence time at melt temperature and cooling rate during molding on transcrystallinity and delamination of PEEK-graphite fiber composites)

IT Molding of plastics and rubbers

(compression; effect of temperature, residence time at melt temperature and cooling rate during molding on transcrystallinity and delamination of PEEK-graphite fiber composites)

IT Delamination
Fracture toughness
Polymer morphology
(effect of temperature, residence time at melt temperature and cooling rate during molding on transcrystallinity and delamination of PEEK-graphite fiber composites)

IT Nonwoven fabrics
(graphite fiber-PEEK fiber, composites with PEEK; effect of temperature, residence time at melt temperature and cooling rate during molding on transcrystallinity and delamination of PEEK-graphite fiber composites)

IT Carbon fibers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(graphite, composites with PEEK; effect of temperature, residence time at melt temperature and cooling rate during molding on transcrystallinity and delamination of PEEK-graphite fiber composites)

IT Polyketones
Polyketones
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(polyether-, composites with graphite fibers and PEEK-graphite fiber nonwoven fabrics; effect of temperature, residence time at melt temperature and cooling rate during molding on transcrystallinity and delamination of PEEK-graphite fiber composites)

IT Polyketones
Polyketones
Polyketones
RL: TEM (Technical or engineered material use); USES (Uses)
(polyether-, fiber, PEEK, nonwoven fabrics from graphite fibers and; effect of temperature, residence time at melt temperature and cooling rate during molding on transcrystallinity and delamination of PEEK-graphite fiber composites)

IT Polyethers, uses
Polyethers, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(polyketone-, composites with graphite fibers and PEEK-graphite fiber nonwoven fabrics; effect of temperature, residence time at melt temperature and cooling rate during molding on transcrystallinity and delamination of PEEK-graphite fiber composites)

IT Polyethers, uses
Polyethers, uses
Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyketone-, fiber, PEEK, nonwoven fabrics from graphite fibers and; effect of temperature, residence time at melt temperature and cooling rate during molding on transcrystallinity and delamination of PEEK-graphite fiber composites)

IT Crystallinity
(transcrystallinity; effect of temperature, residence time at melt temperature and

cooling rate during molding on transcrystallinity and delamination of PEEK-graphite fiber composites)

IT 31694-16-3, PEEK

RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(composites with graphite fibers and PEEK-graphite fiber nonwoven fabrics; effect of temperature, residence time at melt temperature and cooling rate during molding on transcrystallinity and delamination of PEEK-graphite fiber composites)

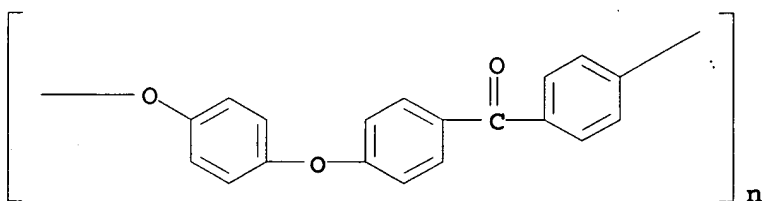
IT 31694-16-3, PEEK

RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(composites with graphite fibers and PEEK-graphite fiber nonwoven fabrics; effect of temperature, residence time at melt temperature and cooling rate during molding on transcrystallinity and delamination of PEEK-graphite fiber composites)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 26 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1998:38281 HCAPLUS

DN 128:89589

TI Polyether-ketone resin compositions and carriers used in processing and treatment of semiconductor wafers

IN Nomura, Hideo; Maeda, Mitsuo

PA Sumitomo Chemical Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10007898	A	19980113	JP 1996-169934	19960628 <--
PRAI	JP 1996-169934		19960628	<--	

AB Title comps. comprise 100 parts PEEK resins and 5-100 parts carbon fibers having average diameter (Da) of 5-20 .mu.m and average length (La) of 30-500 .mu.m. A blend of 100:15 Victrex PEEK 150P and carbon fibers with Da 6 .mu.m and La 160 .mu.m was injection molded into a test piece showing good appearance, heat shrinkage 0.81%, linear expansion coefficient 4.0 + 10-5/C° at 150-200°, flexural modulus 68,500 kg/cm³, heat distortion temperature 223°, resistivity 1010-1011 Ω, abraded amount (Taber test) 5.2 mg/103 times.

IC ICM C08L071-00
ICS B65D085-86; C08K007-06; H01L021-68

CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 38, 76

ST PEEK carbon fiber carrier semiconductor wafer; heat resistance
polyether polyketone carbon fiber; antistatic molding polyether
polyketone carbon fiber; mech strength polyether polyketone
carbon fiber

IT Heat-resistant materials
Semiconductor devices
(carbon fiber-containing polyether-polyketone moldings as
carriers for semiconductor wafers)

IT Carbon fibers, properties
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(carbon fiber-containing polyether-polyketone moldings as
carriers for semiconductor wafers)

IT Electric insulators
(carriers; carbon fiber-containing polyether-polyketone moldings
as carriers for semiconductor wafers)

IT Polyketones
Polyketones
RL: TEM (Technical or engineered material use); USES (Uses)
(polyether-; carbon fiber-containing polyether-polyketone
moldings as carriers for semiconductor wafers)

IT Polyethers, uses
Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyketone-; carbon fiber-containing polyether-polyketone
moldings as carriers for semiconductor wafers)

IT 31694-16-3, Victrex PEEK
RL: TEM (Technical or engineered material use); USES (Uses)
(carbon fiber-containing polyether-polyketone moldings as
carriers for semiconductor wafers)

L39 ANSWER 27 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1997:797821 HCAPLUS

DN 128:48890

TI Wear mechanisms of polyetheretherketone composites filled with various
kinds of SiC

AU Xue, Qun-Ji; Wang, Qi-Hua

CS Lanzhou Institute of Chemical Physics, Laboratory of Solid Lubrication,
Chinese Academy of Sciences, Lanzhou 730000, Peop. Rep. China

SO Wear (1997), 213(1-2), 54-58
CODEN: WEARAH; ISSN: 0043-1648

PB Elsevier Science S.A.

DT Journal

LA English

AB Nanometer SiC, micron SiC, and whisker SiC were used as fillers
in PEEK, and the influence of these fillers on the friction and wear of
the PEEK composites was studied. The composite specimens with various
kinds of SiC were prepared by compression molding. Their friction and wear
properties were investigated under ambient conditions in a block-on-ring
machine by running a plain carbon steel (AISI 1045 steel) ring against the
PEEK composite block. The morphologies of the wear traces and wear debris
were observed by SEM. Exptl. results showed that all these fillers reduced
the friction of PEEK and that 10.0 weight nanometer SiC as filler was very
effective in reducing the wear of PEEK. The wear rate of PEEK filled with
10.0 weight whisker SiC was almost unaffected. SEM analyses indicated that
severe abrasive wear occurred on the worn surfaces of PEEK composites
filled with micron-sized SiC and whisker SiC. In the case of

the carbon steel ring/nm SiC filled composite block, a thin, uniform, and tenacious transfer film was formed on the surface of the steel-ring surface. The wear mechanisms of PEEK composites filled with nanometer SiC, micron SiC, and whisker SiC were different.

CC 37-5 (Plastics Manufacture and Processing)

ST silicon carbide PEEK wear friction; tribol polyether polyketone silicon carbide

IT Wear
(abrasive; wear mechanisms of poly(etheretherketone) composites filled with various kinds of SiC)

IT Polyketones
Polyketones
RL: PRP (Properties)
(polyether-; wear mechanisms of poly(etheretherketone) composites filled with various kinds of SiC)

IT Polyethers, properties
Polyethers, properties
RL: PRP (Properties)
(polyketone-; wear mechanisms of poly(etheretherketone) composites filled with various kinds of SiC)

IT Synthetic fibers
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(silicon carbide; wear mechanisms of poly(etheretherketone) composites filled with various kinds of SiC)

IT Polymer morphology
(wear mechanisms of poly(etheretherketone) composites filled with various kinds of SiC)

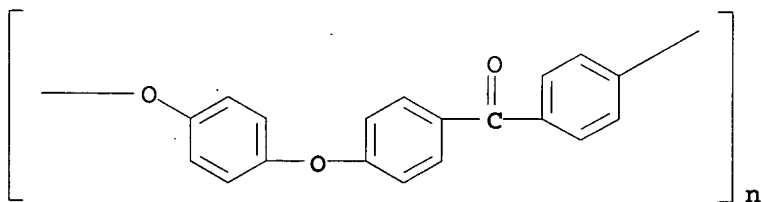
IT 409-21-2, Silicon carbide, properties
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(wear mechanisms of poly(etheretherketone) composites filled with various kinds of SiC)

IT 31694-16-3, PEEK
RL: PRP (Properties)
(wear mechanisms of poly(etheretherketone) composites filled with various kinds of SiC)

IT 31694-16-3, PEEK
RL: PRP (Properties)
(wear mechanisms of poly(etheretherketone) composites filled with various kinds of SiC)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 28 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1997:763660 HCAPLUS
DN 127:347041
TI MOD impact damage on composite materials in space

AU Tennyson, R. C.; Shortliffe, G.
CS University of Toronto Institute for Aerospace Studies, North York, ON, M3H 5T6, Can.
SO European Space Agency, [Special Publication] ESA SP (1997), ESA SP-399 (Materials in Space Environment), 485-492
CODEN: ESPUD4; ISSN: 0379-6566
PB ESA Publications
DT Journal
LA English
AB Spacecraft in low earth orbit were vulnerable to impact damage from collisions with micrometeoroids and orbital debris (MOD). The damage resulting from hypervelocity impact tests conducted on various graphite fiber-reinforced PEEK laminates impacted by aluminum spheres over a velocity range of 3 to 7 km/s was studied. Flat plates of various laminate thicknesses and fiber orientations were first investigated to assess impact damage at different energies. Subsequently, circular cylindrical laminated tubes were tested which closely modeled the Canadian robot arm structures planned for utilization on the International Space Station. In these latter tests, overwraps of MLI were included to better model the actual configuration in space. All of the impact test results were found to correlate with an energy parameter that included target/impactor material properties. Impact damage was measured in terms of crater size, total front and rear face damage areas and secondary debris plume effects. High speed photog. clearly showed the growth in the debris plume after front wall penetration and the subsequent damage that resulted from the hypervelocity impacts of these particles. From a design point of view, it is the plume damage that causes the greatest structural damage that results in a large region of local fractures which can reduce the structural stiffness and buckling strength by as much as 50%. Tests were also conducted with Nextel fabric, including an interior "sock" design, that were shown to mitigate this plume damage. A case study is also presented to demonstrate the application of this data to estimate the impact probability and damage for a given structural configuration over a specified lifetime in low earth orbit. Impact probabilities were estimated for the orbital parameters using the NASA Environet model.

CC 37-5 (Plastics Manufacture and Processing)
Section cross-reference(s): 38

ST composite impact damage micrometeoroid orbital debris; graphite fiber PEEK impact damage; aluminum sphere impact damage PEEK composite

IT Carbon fibers, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(graphite, AS 4 and IM 7; hypervelocity impact damage of graphite fiber-reinforced PEEK laminates impacted by aluminum spheres)

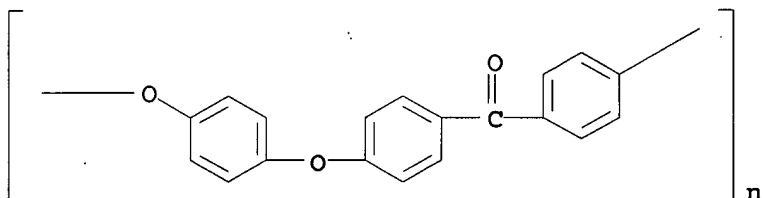
IT Polyketones
Polyketones
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyether-, aromatic; hypervelocity impact damage of graphite fiber-reinforced PEEK laminates impacted by aluminum spheres)

IT Polyethers, properties
Polyethers, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyketone-, aromatic; hypervelocity impact damage of graphite fiber-reinforced PEEK laminates impacted by aluminum spheres)

IT 7429-90-5, Aluminum, uses
RL: NUU (Other use, unclassified); USES (Uses)
(hypervelocity impact damage of graphite fiber-reinforced PEEK laminates impacted by aluminum spheres)

IT 31694-16-3, PEEK
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(hypervelocity impact damage of graphite fiber-reinforced

IT PEEK laminates impacted by aluminum **spheres**)
31694-16-3, PEEK
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(hypervelocity impact damage of graphite fiber-reinforced
PEEK laminates impacted by aluminum **spheres**)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX
NAME)



RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 29 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1997:687457 HCAPLUS
DN 127:347047
TI Microfractography of CFRP with thermoplastic matrix (APC-2)
AU Franz, Horst E.
CS Daimler Benz A.-G., Munich, D-81663, Germany
SO Materialwissenschaft und Werkstofftechnik (1997), 28(10),
481-499
CODEN: MATWER; ISSN: 0933-5137
PB Wiley-VCH
DT Journal
LA German
AB Microfractog. features of C fiber-reinforced compds. with a thermoplastic
matrix consisting of poly(ether ether ketone) were investigated due to
specific loading modes. Expts. were performed using APC-2 C-prepreg and
IM 6 fibers with a PEEK matrix. Interlaminar fractures were produced
using static mode I, II, and mixed mode loading. Simultaneously the
fracture toughness was measured as well as the influence of crack growth
velocity and temperature on the fracture morphol. Interlaminar fatigue
fractures show specific fracture morphologies which are influenced from
the **spherulitic** microstructure of the semicryst. matrix. The
ductile fracture morphol. corresponds to lower and the brittle one to
higher crack growth velocity.
CC 37-5 (Plastics Manufacture and Processing)
ST polyether polyketone thermoplastic carbon fiber microfractog
IT Polymer morphology
(fracture-surface; microfractog. of carbon fiber-reinforced
thermoplastic PEEK)
IT Carbon fibers, uses
Carbon fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(graphite, polyacrylonitrile-based, Magmamite IM 6; microfractog. of
carbon fiber-reinforced thermoplastic PEEK)
IT Fracture (materials)
(microfractog. of carbon fiber-reinforced thermoplastic PEEK)
IT Polyketones
Polyketones
RL: PEP (Physical, engineering or chemical process); POF (Polymer in

formulation); PRP (Properties); PROC (Process); USES (Uses)
(polyether-; microfractog. of carbon fiber-reinforced thermoplastic PEEK)

IT Polyethers, properties
Polyethers, properties

RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)
(polyketone-; microfractog. of carbon fiber-reinforced thermoplastic PEEK)

IT Fracture surface morphology
(polymeric; microfractog. of carbon fiber-reinforced thermoplastic PEEK)

IT 31694-16-3, APC-2

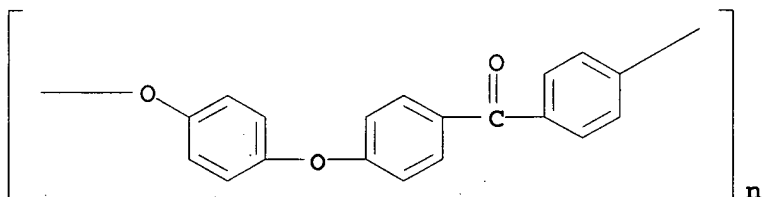
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)
(fiber-reinforced; microfractog. of carbon fiber
-reinforced thermoplastic PEEK)

IT 31694-16-3, APC-2

RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)
(fiber-reinforced; microfractog. of carbon fiber
-reinforced thermoplastic PEEK)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 30 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1997:427610 HCAPLUS

DN 127:82353

TI Powder coating process for thermoplastic prepregs with JFY-1 machine

AU Li, Yuanzhen; Lou, Kuiyang; Fu, Ying; Li, Feng; Zhang, Fengfan

CS Institute of Aeronautical Materials, Beijing, 100095, Peop. Rep. China

SO International SAMPE Symposium and Exhibition (1996),

41(Materials and Process Challenges: Aging Systems, Affordability,
Alternative Applications, Book 2), 1724-1730

CODEN: ISSEEG; ISSN: 0891-0138

PB Society for the Advancement of Material and Process Engineering

DT Journal

LA English

AB A JFY-1 electrostatic powder coating machine was developed for the production of thermoplastic prepregs. Its construction and process was described, especially the closed loop control system which could guarantee the deviation of

the weight fraction of resin on prepregs to within $\pm 3\%$. The process was optimized by orthogonal expts. where the most sensitive factors were determined. Fiber-reinforced PEEK prepregs with good mech. properties were prepared

CC 38-2 (Plastics Fabrication and Uses)

ST powder coating process thermoplastic prepreg; fiber reinforced PEEK prepreg prodn app

IT Carbon fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(PEEK prepregs reinforced with; powder coating process for production of)

IT Reinforced plastics
Reinforced plastics
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM
(Technical or engineered material use); PREP (Preparation); USES (Uses)
(fiber-reinforced thermoplastics; powder coating process for production of)

IT Carbon fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(graphite, PEEK prepregs reinforced with; powder coating process for production of)

IT Polyketones
Polyketones
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM
(Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-, fiber-reinforced prepregs; powder coating process for production of)

IT Polyethers, uses
Polyethers, uses
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM
(Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyketone-, fiber-reinforced prepregs; powder coating process for production of)

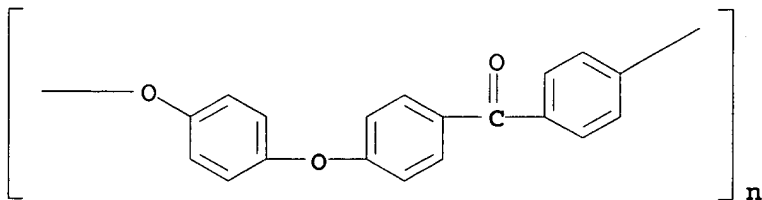
IT Coating process
(powder; for production of fiber-reinforced thermoplastic prepregs)

IT 31694-16-3P, PEEK
RL: IMF (Industrial manufacture); POF (Polymer in formulation);
TEM (Technical or engineered material use); PREP (Preparation);
USES (Uses)
(fiber-reinforced prepregs; powder coating process for production of)

IT 31694-16-3P, PEEK
RL: IMF (Industrial manufacture); POF (Polymer in formulation);
TEM (Technical or engineered material use); PREP (Preparation);
USES (Uses)
(fiber-reinforced prepregs; powder coating process for production of)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)

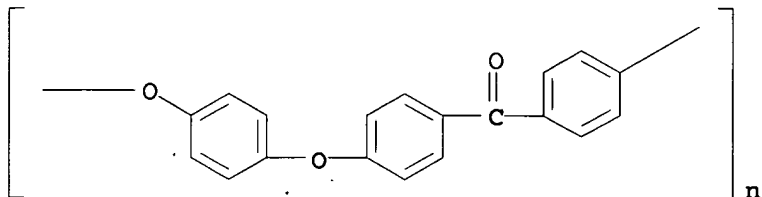


RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 31 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1997:210359 HCAPLUS
DN 126:212938
TI Processing of CF/PEEK thermoplastic composites from flexible preforms
AU Ye, Lin; Friedrich, Klaus

- CS Centre for Advanced Materials Technology, Department of Mechanical and Mechatronic Engineering, University of Sydney, NSW 2006, Australia
- SO Advanced Composite Materials (1997), 6(2), 83-97
CODEN: ACOAEM; ISSN: 0924-3046
- PB VSP
- DT Journal
- LA English
- AB Impregnation and consolidation mechanisms in carbon fiber (CF)/PEEK thermoplastic composites processed from commingled yarn and powder/sheath fiber bundle preforms were studied. Impregnation models were developed to qual. describe the consolidation processes during composite processing. These models simulate void contents as a function of preform geometry and processing variables. Good correlations with exptl. data were obtained. Based on a desired min. level of void content, optimum processing windows for CF/PEEK composites from these flexible product forms were generated. A parameter was introduced to describe the degree of commingled status which controls consolidation of commingled yarn thermoplastic composites. If comparing impregnation and consolidation mechanism of CF/PEEK commingled yarn composites with those in materials processed from powder/sheath fiber bundles, longer processing times and higher applied pressures may be required to reach full consolidation.
- CC 38-2 (Plastics Fabrication and Uses)
Section cross-reference(s): 37
- ST carbon fiber PEEK thermoplastic composite processing; model void content carbon fiber PEEK; impregnation mechanism PEEK carbon fiber; consolidation mechanism PEEK carbon fiber
- IT Impregnation
(impregnation and consolidation mechanisms in carbon fiber/PEEK composites from commingled yarns and powder/sheath fiber bundle preforms)
- IT Carbon fibers, uses
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(impregnation and consolidation mechanisms in carbon fiber/PEEK composites from commingled yarns and powder/sheath fiber bundle preforms)
- IT Polyketones
Polyketones
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(polyether-; impregnation and consolidation mechanisms in carbon fiber/PEEK composites from commingled yarns and powder/sheath fiber bundle preforms)
- IT Polyethers, uses
Polyethers, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(polyketone-; impregnation and consolidation mechanisms in carbon fiber/PEEK composites from commingled yarns and powder/sheath fiber bundle preforms)
- IT 31694-16-3, PEEK
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(impregnation and consolidation mechanisms in carbon fiber /PEEK composites from commingled yarns and powder/sheath fiber bundle preforms)

IT 31694-16-3, PEEK
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(impregnation and consolidation mechanisms in carbon fiber /PEEK composites from commingled yarns and powder/sheath fiber bundle preforms)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 32 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1997:141689 HCAPLUS

DN 126:158188

TI Fine poly(ether ether ketone) powders

AU Facinelli, J. V.; Brink, A. E.; Liu, S.; Li, H.; Gardner, S. L.; Davis, R. M.; Riffle, J. S.; Marrocco, M.; Harding, S.

CS NSF S&T Center High Performance Polymeric Adhesives and Composites, Virginia Polytechnic Inst., Blacksburg, VA, 24061, USA

SO Journal of Applied Polymer Science (1997), 63(12), 1571-1578
CODEN: JAPNAB; ISSN: 0021-8995

PB Wiley

DT Journal

LA English

AB The phys. form of polymers is often important for carrying out subsequent processing operations. For example, fine powders are desirable for molding and sintering compds. because they consolidate to produce void-free components. The objective of this work is to prepare fine polymeric particulates suitable for processing into fiber-reinforced polymer composites. Micron-size particles of poly(ether ether ketone) (PEEK) were prepared by rapidly quenching solns. of these materials; PEEK pellets were dissolved at temps. near the PEEK m.p. in a mixture of terphenyls and quaterphenyls, and then the solution was quenched to a temperature between the T_g and T_m (≈ 225°C) by adding a room-temperature eutectic mixture of di-Ph ether and biphenyl. A supersatd., metastable solution of PEEK resulted, causing rapid nucleation. Fine PEEK particles rapidly crystallized from this solution. The average particle size

was measured using transmission electron microscopy, atomic force microscopy, and by light scattering of aqueous suspensions which had been fractionated by centrifugation. The average particle diameter was about 0.6 μm. Three-dimensional photomicrographs obtained via atomic force microscopy showed some aggregates in the suspensions.

CC 37-5 (Plastics Manufacture and Processing)

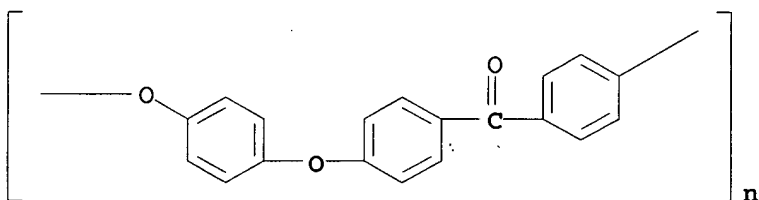
ST PEEK particle size supersatd soln; polyether polyketone semicryst suspension

IT Polyketones

Polyketones

RL: PRP (Properties)

(polyether-; preparation and properties of poly(ether ether ketone) powders)
IT Polyethers, properties
Polyethers, properties
RL: PRP (Properties)
(polyketone-; preparation and properties of poly(ether ether ketone) powders)
IT Crystallinity
Particle size
(preparation and properties of poly(ether ether ketone) powders)
IT 31694-16-3, PEEK
RL: PRP (Properties)
(preparation and properties of poly(ether ether ketone) powders)
IT 31694-16-3, PEEK
RL: PRP (Properties)
(preparation and properties of poly(ether ether ketone) powders)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 33 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1997:60973 HCAPLUS

DN 126:75687

TI High-thermoconductive resins and films therefrom

IN Nakao, Ryuji

PA Otsuka Kagaku KK, Japan; Otsuka Chemical Holdings Co., Ltd.

SO Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08283456	A	19961029	JP 1995-111342	19950410 <--
	JP 3512519	B2	20040329		
PRAI	JP 1995-111342		19950410	<--	

AB The title compns. contain thermoplastic resins and highly thermally conductive inorg. fibers and powder. Thus, a test piece containing PBT resin 60, AlN whiskers 30, and AlN powder 10 parts had thermocond. 3.78 W/m.k.

IC ICM C08K007-04

ICS C08J005-18; C08K003-00; C08K009-06; C08L101-00

CC 37-6 (Plastics Manufacture and Processing)

ST polyester aluminum nitride thermocond; inorg fiber polymer thermocond; powder inorg polymer thermocond

IT Crystal whiskers

(aluminum nitride; high-thermoconductive resins containing inorg. fibers and powder for films)

IT Synthetic fibers

RL: MOA (Modifier or additive use); USES (Uses)

(aluminum nitride; high-thermoconductive resins containing inorg. fibers)

and powder for films)

IT Coupling agents
Thermal conductors
(high-thermoconductive resins containing inorg. fibers and powder for films)

IT Carbides
Carbon fibers, uses
Inorganic compounds
Metals, uses
Nitrides
Oxides (inorganic), uses
RL: MOA (Modifier or additive use); USES (Uses)
(high-thermoconductive resins containing inorg. fibers and powder for films)

IT Plastic films
Polyesters, properties
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(high-thermoconductive resins containing inorg. fibers and powder for films)

IT Polyketones
Polyketones
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-; high-thermoconductive resins containing inorg. fibers and powder for films)

IT Polyethers, properties
Polyethers, properties
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyketone-; high-thermoconductive resins containing inorg. fibers and powder for films)

IT 1309-48-4, Magnesium oxide, uses
RL: MOA (Modifier or additive use); USES (Uses)
(Pyrokisuma 5301; high-thermoconductive resins containing inorg. fibers and powder for films)

IT 12033-89-5, Silicon nitride, properties
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(SNF 1; high-thermoconductive resins containing inorg. fibers and powder for films)

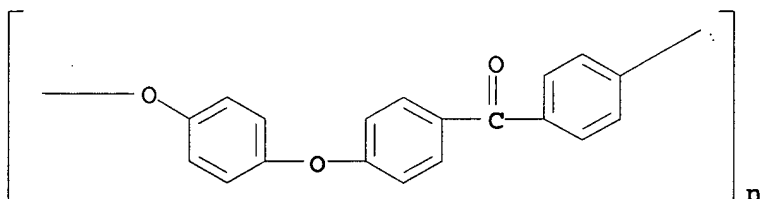
IT 409-21-2, Silicon carbide, uses 1314-13-2, Zinc oxide, uses 7440-44-0, Carbon, uses 7631-86-9, Silica, uses 7782-40-3, Diamond, uses 12069-32-8, Boron carbide
RL: MOA (Modifier or additive use); USES (Uses)
(high-thermoconductive resins containing inorg. fibers and powder for films)

IT 1344-28-1, Aluminum oxide (Al₂O₃), properties 7782-42-5, VGCF, properties 10043-11-5, Denka boron nitride GP, properties
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(high-thermoconductive resins containing inorg. fibers and powder for films)

IT 24968-12-5, PBT 26062-94-2 31694-16-3, Victrex PEEK 450G
RL: **POF (Polymer in formulation)**; PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(high-thermoconductive resins containing inorg. **fibers** and **powder** for films)

IT 24304-00-5, Aluminum nitride
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(whiskers; high-thermoconductive resins containing inorg. fibers and powder for films)

IT 31694-16-3, Victrex PEEK 450G
 RL: POF (Polymer in formulation); PRP (Properties); TEM
 (Technical or engineered material use); USES (Uses)
 (high-thermoconductive resins containing inorg. **fibers** and
powder for films)
 RN 31694-16-3 HCAPLUS
 CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX
 NAME)



L39 ANSWER 34 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 1996:567083 HCAPLUS
 DN 125:197506
 TI Polyether-polyketone resin compositions and carriers for processing and
 treating semiconductor wafers
 IN Kobayashi, Tadayasu; Asai, Kuniaki; Nomura, Hideo; Maeda, Mitsuo
 PA Sumitomo Chemical Company, Limited, Japan
 SO Eur. Pat. Appl., 18 pp.
 CODEN: EPXXDW

DT Patent
 LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 722985	A2	19960724	EP 1996-100659	19960117 <--
	EP 722985	A3	19971112		
	EP 722985	B1	20011024		
	R: DE, FR, GB, NL				
	JP 08253671	A	19961001	JP 1995-322756	19951212 <--
	JP 2798028	B2	19980917		
	US 5681888	A	19971028	US 1996-582340	19960119 <--
	CN 1138603	A	19961225	CN 1996-101810	19960120 <--
PRAI	JP 1995-7107	A	19950120		<--

AB A polyether-polyketone resin composition comprises 5-100 parts of carbon
fibers having an average **fiber** diameter of 5-20 .
 .mu.m and an average **fiber** length of 30
 -500 .mu.m per 100 parts of the composition,
 50-95 weight% of a polyether-polyketone resin, and 5-50 weight% of a liquid
 crystalline
 polyester. The composition can be molded into a carrier with good stiffness,
 dimensional stability, and antistatic properties for processing or
 treating a semi-conductor wafer. One such composition contained 77 parts of
 Victrex **PEEK** (polyether-polyketone), 23 parts of a liquid crystalline
 polyester comprising residues from 4-hydroxybenzoic acid,
 4,4'-dihydroxybiphenyl, terephthalic acid, and isophthalic acid in
 60:20:15:5 ratio, and 15 parts of polyacrylonitrile-derived carbon
fibers having an average diameter 6 .mu.m and average
 length 40-160 .mu.m and had mold shrinkage
 factor 0.60%, tensile strength 1380 kg/cm2, and flexural modulus 80000
 kg/cm2.

IC ICM C08L071-00
ICS C08L067-00; C08K007-06; H01L021-30
ICI C08L071-00, C08L067-00; C08L067-00, C08L071-00
CC 37-6 (**Plastics** Manufacture and Processing)
Section cross-reference(s): 38, 76
ST polyether polyketone polyester polyacrylonitrile blend; liq crystal
polyester blend; carbon **fiber** polyacrylonitrile blend;
semiconductor wafer carrier polyether polyketone
IT Liquid crystals, polymeric
Semiconductor materials
(polyether-polyketone resin compns. and carriers for processing and
treating semiconductor wafers)
IT Acrylic **fibers**, properties
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)
(polyether-polyketone resin compns. and carriers for processing and
treating semiconductor wafers)
IT Polyesters, properties
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)
(aromatic, liquid crystal; polyether-polyketone resin compns. and carriers
for processing and treating semiconductor wafers)
IT Polyketones
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)
(polyether-, aromatic, polyether-polyketone resin compns. and carriers for
processing and treating semiconductor wafers)
IT Polyethers, properties
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)
(polyketone-, aromatic, polyether-polyketone resin compns. and carriers
for processing and treating semiconductor wafers)
IT 25014-41-9, Polyacrylonitrile
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)
(**fiber**; polyether-polyketone resin compns. and carriers for
processing and treating semiconductor wafers)
IT 60088-52-0, 4,4'-Dihydroxybiphenyl-4-hydroxybenzoic acid-isophthalic
acid-terephthalic acid copolymer
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)
(liquid crystal; polyether-polyketone resin compns. and carriers for
processing and treating semiconductor wafers)
IT 31694-16-3, Victrex PEEK
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)
(polyether-polyketone resin compns. and carriers for processing and
treating semiconductor wafers)
L39 ANSWER 35 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1996:410410 HCAPLUS
DN 125:60060
TI Plastic compositions for abrasion-resistant sliding parts with low
friction coefficient
IN Saigo, Takaaki; Ueji, Yutaka; Sasa, Nobuhisa
PA Starlite Ind, Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08092487	A	19960409	JP 1994-254733	19940922 <--
PRAI	JP 1994-254733		19940922 <--		
AB	The title compns. comprise synthetic resins (e.g., polythiophenylenes, PEEK, polyacetal, polyamides, polyimides, polyimideamides, phenolic resins, epoxy resins) containing inorg. oxide particles with Mohs hardness 2.5-7 and diameter 0.1-30 .mu.m (e.g., ZnO, SnO2, MgO, Cu2O, MnO2, SiO2) 0.25-10, solid lubricants (e.g., PTFE, graphite flakes, MoS2) 3-30, and optionally aromatic polyamide fibers 0-30 volume%.				
IC	ICM C08L101-00 ICS C08L101-00; C08K003-04; C08K003-30; C08K007-02				
ICI	C08L101-00, C08L027-18, C08L077-00				
CC	37-6 (Plastics Manufacture and Processing)				
ST	polythiophenylene sliding part abrasion resistance; PEEK sliding part abrasion resistance; polyacetal sliding part abrasion resistance; polyamide sliding part abrasion resistance; polyimide sliding part abrasion resistance; phenolic resin sliding part abrasion resistance; epoxy sliding part abrasion resistance; oxide inorg powd sliding part; PTFE solid lubricant sliding part; graphite flake lubricant sliding part; molybdenum sulfide lubricant sliding part				
IT	Abrasion-resistant materials (abrasion-resistant sliding parts with low friction coefficient)				
IT	Epoxy resins, properties Phenolic resins, properties Plastics, molded Polyamides, properties Polyimides, properties Polyoxymethylenes, properties Polythiophenylenes RL: DEV (Device component use); POF (Polymer in formulation); PRP (Properties); USES (Uses) (abrasion-resistant sliding parts with low friction coefficient)				
IT	Oxides, uses RL: MOA (Modifier or additive use); USES (Uses) (abrasion-resistant sliding parts with low friction coefficient)				
IT	Polyamide fibers, uses RL: MOA (Modifier or additive use); USES (Uses) (isophthalic acid-m-phenylenediamine, abrasion-resistant sliding parts with low friction coefficient)				
IT	Polyimides, properties RL: DEV (Device component use); POF (Polymer in formulation); PRP (Properties); USES (Uses) (polyamide-, abrasion-resistant sliding parts with low friction coefficient)				
IT	Polyketones RL: DEV (Device component use); POF (Polymer in formulation); PRP (Properties); USES (Uses) (polyether-, abrasion-resistant sliding parts with low friction coefficient)				
IT	Polyamides, properties RL: DEV (Device component use); POF (Polymer in formulation); PRP (Properties); USES (Uses) (polyimide-, abrasion-resistant sliding parts with low friction coefficient)				
IT	Polyethers, properties RL: DEV (Device component use); POF (Polymer in formulation); PRP (Properties); USES (Uses) (polyketone-, abrasion-resistant sliding parts with low friction coefficient)				
IT	Bearings				

- (sliding, abrasion-resistant sliding parts with low friction coefficient)
- IT Lubricants
(solid, abrasion-resistant sliding parts with low friction coefficient)
- IT 25212-74-2, Tohpren T 4 31694-16-3, Victrex PEEK 450P 108598-85-2, Milex XL 225M
RL: DEV (Device component use); POF (Polymer in formulation); PRP (Properties); USES (Uses)
(abrasion-resistant sliding parts with low friction coefficient)
- IT 1309-48-4, Magnesium oxide, MgO, uses 1313-13-9, Manganese oxide, MnO₂, uses 1314-13-2, Zinc oxide, ZnO, uses 1317-39-1, Copper oxide, Cu₂O, uses 7631-86-9, Silica, uses 18282-10-5, Tin oxide, SnO₂ 24938-60-1, Conex
RL: MOA (Modifier or additive use); USES (Uses)
(abrasion-resistant sliding parts with low friction coefficient)
- IT 1317-33-5, Molybdenum disulfide, MoS₂, uses 7782-42-5, Graphite, uses 9002-84-0, KTL 610
RL: MOA (Modifier or additive use); USES (Uses)
(solid lubricants; abrasion-resistant sliding parts with low friction coefficient)
- L39 ANSWER 36 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1995:895331 HCAPLUS
DN 124:57573
TI Thermal anisotropy of polymer carbon fiber composites as revealed by photodeflection methods
AU Bertolotti, M.; Ferrari, A.; Liakhov, G. L.; Li Voti, R.; Marras, A.; Ezquerro, T. A.; Balta-Calleja, F. J.
CS Dip. Energetica, Univ. Roma La Sapienza, Rome, 00161, Italy
SO Journal of Applied Physics (1995), 78(9), 5706-12
CODEN: JAPIAU; ISSN: 0021-8979
PB American Institute of Physics
DT Journal
LA English
AB The thermal diffusivity of carbon fiber composites was measured using different fiber types and polymer matrixes. A thermoplastic polyimide, PEEK, and PEKK resins with carbon fibers T800, AS-4, AS4-LDF, and the corresponding prepregs [62% carbon fiber] were studied. Photothermal testing was performed in the various directions parallel and perpendicular to the carbon fiber axis by different photothermal configurations. By focusing the laser beam with a spherical lens, local inhomogeneities of the composite surface in the range of 10 μm are distinguished. When focusing is done with the aid of a cylindrical lens, averaging over larger scales of the photothermal deflected signal takes place. The results for various carbon fiber materials are discussed in terms of thermal diffusion length and thermal diffusivity. The thermal photo-deflection method is suitable for measuring anisotropy in oriented carbon fiber composites.
- CC 37-5 (Plastics Manufacture and Processing)
Section cross-reference(s): 57
- ST carbon fiber polymer composite thermal diffusivity; polyimide carbon fiber prepreg thermal anisotropy; polyetherketone carbon fiber photothermal testing
- IT Polyimides, properties
RL: PRP (Properties)
(carbon fiber prepregs; thermal diffusivity of carbon fiber - polymer composites studied by photodeflection and photothermal methods)
- IT Testing of materials
(photothermal; thermal diffusivity of carbon fiber - polymer

composites studied by photodeflection and photothermal methods)

IT Carbon **fibers**, properties
RL: PRP (Properties)
(polymer preregs; thermal diffusivity of carbon **fiber** -
polymer composites studied by photodeflection and photothermal methods)

IT Thermal conductivity and conduction
(thermal diffusivity of carbon **fiber** - polymer composites
studied by photodeflection and photothermal methods)

IT Anisotropy
(thermal diffusivity; thermal diffusivity of carbon **fiber** -
polymer composites studied by photodeflection and photothermal methods)

IT Polyketones
RL: PRP (Properties)
(polyether-, aromatic, carbon **fiber** preregs; thermal
diffusivity of carbon **fiber** - polymer composites studied by
photodeflection and photothermal methods)

IT Polyethers, properties
RL: PRP (Properties)
(polyketone-, aromatic, carbon **fiber** preregs; thermal
diffusivity of carbon **fiber** - polymer composites studied by
photodeflection and photothermal methods)

IT 31694-16-3, PEEK 54991-67-2, PEKK
RL: PRP (Properties)
(carbon **fiber** preregs; thermal diffusivity of carbon
fiber - polymer composites studied by photodeflection and
photothermal methods)

L39 ANSWER 37 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1995:615162 HCAPLUS
DN 123:11307
TI Polyketone-based microporous membranes with slit pores and their
manufacture
IN Koyanagi, Seiya; Kawai, Yoshiho; Kamo, Jun
PA Mitsubishi Rayon Co, Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 07000776	A	19950106	JP 1993-146572	19930617 <--
JP 1993-146572		19930617	<--	

AB The title membranes having slit pores of average width 0.01-10 .
 μ m are manufactured by spinning a mixture of 40-95%
polyketones and 60-5% microparticles having diameter 0.02-10 .
 μ m and stretching the resulting spun products. Thus,
melt spinning pellets containing 60 parts Victrex PEEK 150P and 40
parts crosslinked silicone microparticles (diameter 0.8 μ m) using
double-walled tubular nozzles at 400° and spitting speed of 10
cm/min while winding at 4 m/min and draft ratio of 40:1 gave hollow
fibers which were stretched at 145° under a deformation
speed of 10% per min to 300%. The final hollow **fibers** had outer
diameter 800 μ m, inner diameter 500 μ m and slit pores with average width 0.6
 μ m and length 4 μ m at void ratio 72%.

IC ICM B01D071-52
ICS C08G065-40

CC 38-3 (Plastics Fabrication and Uses)

ST polyketone polyether hollow **fiber** membrane; PEEK hollow
fiber membrane; slit pore hollow **fiber** membrane

IT Silsesquioxanes
RL: MOA (Modifier or additive use); USES (Uses)
(Tospearl; polyketone-based microporous membranes with slit pores and manufacture)

IT Silsesquioxanes
RL: MOA (Modifier or additive use); USES (Uses)
(Me, polyketone-based microporous membranes with slit pores and manufacture)

IT Membranes
(hollow-fiber, polyketone-based microporous membranes with slit pores and manufacture)

IT Polyketones
RL: DEV (Device component use); USES (Uses)
(polyether-, polyketone-based microporous membranes with slit pores and manufacture)

IT Polyethers, uses
RL: DEV (Device component use); USES (Uses)
(polyketone-, polyketone-based microporous membranes with slit pores and manufacture)

IT 27380-27-4, Victrex PEK 220P 31694-16-3
RL: DEV (Device component use); USES (Uses)
(polyketone-based microporous membranes with slit pores and manufacture)

IT 471-34-1, Calcium carbonate, uses
RL: MOA (Modifier or additive use); USES (Uses)
(polyketone-based microporous membranes with slit pores and manufacture)

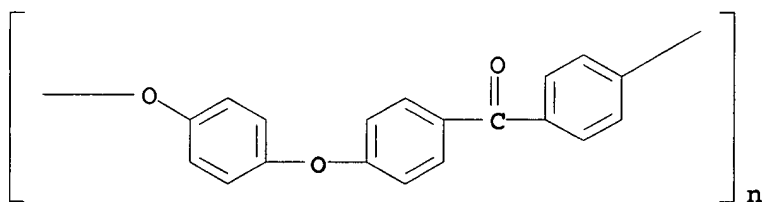
L39 ANSWER 38 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1995:544369 HCAPLUS
DN 123:145858
TI A model for the consolidation of aligned thermoplastic powder impregnated composites
AU Connor, M.; Toll, S.; Manson, J.-A. E.; Gibson, A. G.
CS Laboratoire de Technologie des Composites et Polymeres, Ecole Polytechnique Federale de Lausanne, Lausanne, CH-1015, Switz.
SO Journal of Thermoplastic Composite Materials (1995), 8(April), 138-62
CODEN: JTMAEQ; ISSN: 0892-7057
DT Journal
LA English
AB The principal factors involved in the consolidation stage of processing powder-impregnated composites are described, placing in context the effects due to surface energy, viscous flow, externally applied pressure, and fiber bed elasticity. The effects are taken into account in a simple model which is shown to be capable of accurately describing the consolidation behavior under externally applied pressure. Consolidation expts. on powder-impregnated composites (thermoplastic-impregnated fibers) were carried out using a mold attached to a servo-hydraulic testing machine. The model accurately predicts variations in void content during consolidation of carbon fiber/PEEK (CF/PEEK) and carbon fiber/polyetherimide (CF/PEI) laminates. At the pressures needed to achieve rapid consolidation, surface energy has a negligible influence on impregnation rate, but its effects on the void topol. can be considerable. When laminates of low void content are required, a min. pressure is needed to overcome the effect of fiber bed elasticity.

CC 38-2 (Plastics Fabrication and Uses)
Section cross-reference(s): 37

ST model consolidation powder impregnated composite; thermoplastic impregnated fiber composite consolidation

IT Carbon fibers, uses
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)

- (thermoplastics reinforced by; model for consolidation of thermoplastic powder-impregnated composites) .
- IT Plastics, reinforced
 RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)
 (carbon fiber-, thermo-; model for consolidation of thermoplastic powder-impregnated composites)
- IT Polyimides, uses
 Polyketones
 RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)
 (polyether-, carbon fiber-reinforced; model for consolidation of thermoplastic powder-impregnated composites)
- IT Polyethers, uses
 RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)
 (polyimide-, carbon fiber-reinforced; model for consolidation of thermoplastic powder-impregnated composites)
- IT Polyethers, uses
 RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)
 (polyketone-, carbon fiber-reinforced; model for consolidation of thermoplastic powder-impregnated composites)
- IT 31694-16-3, PEEK
 RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)
 (carbon fiber-reinforced; model for consolidation of thermoplastic powder-impregnated composites)
- IT 31694-16-3, PEEK
 RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)
 (carbon fiber-reinforced; model for consolidation of thermoplastic powder-impregnated composites)
- RN 31694-16-3 HCAPLUS
- CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



- L39 ANSWER 39 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
- AN 1995:368229 HCAPLUS
- DN 123:57899
- TI The influence of molding conditions on delamination behavior of carbon fiber/PEEK composites
- AU Jar, P.-Y. B.; Kausch, H.-H.
- CS Laboratoire de Polymeres, Ecole Polytechnique Federale de Lausanne, Lausanne, CH-1015, Switz.
- SO Composites Science and Technology (1994), 52(3), 349-59
 CODEN: CSTCEH; ISSN: 0266-3538
- PB Elsevier
- DT Journal

LA English

AB The effects of eight molding conditions on the mode I delamination resistance of carbon **fiber/PEEK** composite (APC2) are discussed. The molding conditions are different combinations of forming temperature (380°C and 400°C), forming pressure (0, 0.1 and 1.4 MPa) and cooling rate (0.5, 10 and 50 K min⁻¹). The delamination resistance was evaluated by the determination of four types of GIC values, i.e. (i) GIC,Init, by using the point at the end of the linear part of the force/displacement curve, (ii) GIC,1mm, by using the point at which crack has travelled 1 mm from the starter film, (iii) GIC,5%, by using the point of the intersection between the force/displacement curve and a straight line with a 5% off-set of the initial compliance, and (i.v.) GIC,Prop, by using points during stable crack propagation. Results suggest that the GIC,Init value is most sensitive to the molding conditions and can be used to divide the specimens into three groups. The same division of specimens can also be made from SEM examination on the amount of drawn matrix adhering to the **fiber** surfaces, which implies that the GIC values at the beginning of crack growth are related to the bonding strength at the **fiber/matrix** interface. Comparison of GIC values among specimens with different cooling rates shows that the cooling rate affects GIC values in specimens formed at 400°C but not in specimens formed at 380°C, and that the cooling rate effect is significant only in GIC values measured during the initial crack growth from the starter film, i.e. GIC,Init, GIC,5% and GIC,1mm. Voids smaller than 100 μ m in diameter were observed in specimens molded in simplified two-stage pressure processes which are commonly used for fabricating laminates in the study of cooling rate effects. The results from this study did not show any effect of voids on the measured values of GIC. This paper concludes that molding conditions can affect the delamination resistance of carbon **fiber/PEEK** composites, and supports the authors' previous results that the **fiber/matrix** interface bond strength affects delamination resistance during the initial crack growth from the starter film. The results from this paper also suggests that an increase in cooling rate decreases delamination resistance during the initial crack growth from the starter film, but such an effect is significant only in specimens formed at 400°C.

CC 38-3 (**Plastics** Fabrication and Uses)
Section cross-reference(s): 37

ST carbon **fiber** PEEK composite delamination; molding carbon **fiber** PEEK delamination

IT Molding of plastics and rubbers
(effect of molding conditions on delamination behavior of carbon **fiber/PEEK** composites)

IT Carbon **fibers**, uses
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(effect of molding conditions on delamination behavior of carbon **fiber/PEEK** composites)

IT Lamination
(de-, effect of molding conditions on delamination behavior of carbon **fiber/PEEK** composites)

IT Polyketones
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(polyether-, aromatic, effect of molding conditions on delamination behavior of carbon **fiber/PEEK** composites)

IT Polyethers, uses
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)

(polyketone-, aromatic, effect of molding conditions on delamination behavior of carbon fiber/PEEK composites)

IT 31694-16-3, PEEK

RL: PEP (Physical, engineering or chemical process); PRP (Properties);

PROC (Process)

(effect of molding conditions on delamination behavior of carbon fiber/PEEK composites)

L39 ANSWER 40 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1995:276999 HCAPLUS

DN 122:32948

TI Low-density thermoplastic foamed articles with high strength and one-pot process for making them

IN Perman, Craig A.; Hendrickson, William A.; Riechert, Manfred E.

PA Minnesota Mining and Manufacturing Co., USA

SO Eur. Pat. Appl., 28 pp.

CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 610953	A1	19940817	EP 1994-102162	19940211 <--
	EP 610953	B1	20030604		
	R: DE, FR, GB, IT				
	CA 2115123	A1	19940812	CA 1994-2115123	19940207 <--
	JP 06322168	A	19941122	JP 1994-16199	19940210 <--
	JP 3544556	B2	20040721		
PRAI	US 1993-16602	A	19930211	<--	
	US 1994-181696	A	19940125	<--	

AB The foamed thermoplastic articles, both filled and unfilled, have foamed d. ≥ 0.03 g/cm³ and cell size 10-300 μ m

.m with cell wall thickness 0.1-2 μ m. The one-pot process

involves (a) charging a pressure vessel with a solid thermoplastic

polymer; (b) heating to a predetd. saturation temperature at or near the

polymer

Vicat softening point using an external heat source; (c) simultaneously charging a gas while heating the pressure vessel; (d) equilibrating the pressure vessel, the thermoplastic polymer, and the gas with the heat source temperature; (e) adjusting the pressure by adding addnl. gas to achieve

a

final pressure such that the gas is in a supercrit. fluid state and soluble in the thermoplastic polymer; (f) saturating the thermoplastic polymer for a predetd. period of time; and (g) venting rapidly to depressurize the pressure vessel. Polystyrene test pieces were foamed using CO₂ as the supercrit. fluid.

IC ICM C08J009-18

CC 37-6 (Plastics Manufacture and Processing)

ST thermoplastic foamed article density strength; polystyrene foam supercrit carbon dioxide

IT Plastics, molded

RL: PEP (Physical, engineering or chemical process); PRP (Properties);

PROC (Process)

(cellular; low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)

IT Fluoropolymers

Plastics, cellular

Polycarbonates, properties

Urethane polymers, properties

RL: PEP (Physical, engineering or chemical process); PRP (Properties);

PROC (Process)
(low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)

IT Blowing agents
(supercrit. gas; low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)

IT Polyimides, properties
Polyketones
RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)
(polyether-, low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)

IT Polyethers, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)
(polyimide-, low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)

IT Polyethers, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)
(polyketone-, low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)

IT Alkenes, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)
(α -, polymers, with ethylene; low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)

IT 9011-14-7, PMMA
RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)
(Perspex; low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)

IT 9002-88-4, Polyethylene
RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)
(fibers; low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)

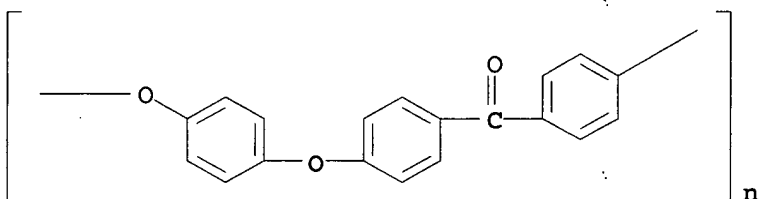
IT 74-85-1D, Ethylene, polymers with α -alkenes 9003-53-6, Polystyrene
9003-56-9, ABS polymer 9004-48-2, Cellulose propionate 9012-09-3,
Cellulose triacetate 25038-71-5, Ethylene-tetrafluoroethylene copolymer
31694-16-3, Victrex 150G 61128-24-3, Ultem 1000 141443-45-0,
Aspun 6806
RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)
(low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)

IT 9002-86-2, PVC
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM
(Technical or engineered material use); PROC (Process); USES (Uses)
(low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)

IT 9003-07-0, Polypropylene
RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)
(polybutylene blend films; low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)

IT 9003-29-6, Polybutene
RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)
(polypropylene blend films; low-d. thermoplastic foamed articles with

high strength and one-pot process for their manufacture)
IT 74-82-8, Methane, uses 74-84-0, Ethane, uses 74-85-1, Ethylene, uses
75-38-7, 1,1-Difluoroethylene 75-46-7, Trifluoromethane 75-73-0,
Tetrafluoromethane 76-16-4, Perfluoroethane 116-14-3,
Tetrafluoroethylene, uses 124-38-9, Carbon dioxide, uses 10024-97-2,
Nitrous oxide, uses
RL: NUU (Other use, unclassified); USES (Uses)
(supercrit., blowing agent; low-d. thermoplastic foamed articles with
high strength and one-pot process for their manufacture)
IT 31694-16-3, Victrex 150G
RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)
(low-d. thermoplastic foamed articles with high strength and one-pot
process for their manufacture)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX
NAME)



L39 ANSWER 41 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1995:25882 HCAPLUS
DN 122:134607
TI The influence of the thermal treatment on the fatigue behavior of APC-2
AU Tregub, A.; Harel, H.; Migliaresi, C.; Marom, G.
CS Grad. Sch. Applied Sci. Technol., Hebrew Univ., Jerusalem, 91904, Israel
SO Proc. Int. Conf. Compos. Mater., 9th (1993), Volume 5, 677-83.
Editor(s): Miravete, Antonio. Publisher: Univ. Zaragoza, Zaragoza, Spain.
CODEN: 60GKA2
DT Conference
LA English
AB The effect of thermal treatment on the morphol. and mech. static and
fatigue behavior in the flexural deformation mode of carbon
fiber-reinforced PEEK (APC-2) composites was studied. The thermal
treatment consisted of melting followed by cooling to the isothermal
crystallization temperature or fast cooling in ice water and annealing, or
fast cooling alone. Whereas the thermal treatment affected both the matrix morphol.
and the mech. properties., the resultant degree of crystallinity did not
change. This effect was attributed to change in spherulite size
and transcrystallinity.
CC 37-5 (Plastics Manufacture and Processing)
ST PEEK carbon composite thermal treatment; morphol PEEK carbon composite;
mech property PEEK carbon composite; crystallinity PEEK carbon composite
IT Carbon fibers, properties
RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)
(effect of thermal treatment on morphol. and mech. behavior of carbon
fiber-reinforced PEEK composites)
IT Polymer morphology
(crystalline, effect of thermal treatment on morphol. and mech. behavior of

carbon fiber-reinforced PEEK composites)

IT Polyketones
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-, effect of thermal treatment on morphol. and mech. behavior of carbon fiber-reinforced PEEK composites)

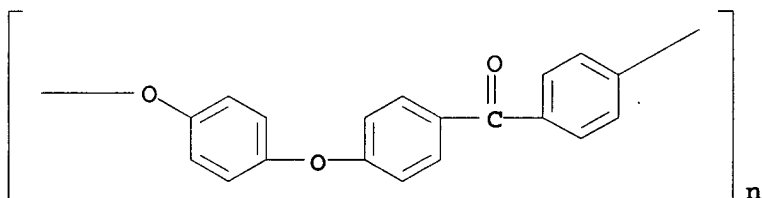
IT Polyethers, properties
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyketone-, effect of thermal treatment on morphol. and mech. behavior of carbon fiber-reinforced PEEK composites)

IT 31694-16-3, PEEK
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(effect of thermal treatment on morphol. and mech. behavior of carbon fiber-reinforced PEEK composites)

IT 31694-16-3, PEEK
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(effect of thermal treatment on morphol. and mech. behavior of carbon fiber-reinforced PEEK composites)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 42 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1994:702236 HCAPLUS

DN 121:302236

TI Wear-resistant solid fluoropolymer composition and process

IN Davies, Mark; Hatton, Paul Martin

PA Imperial Chemical Industries PLC, UK

SO PCT Int. Appl., 15 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9405728	A1	19940317	WO 1993-GB1690	19930810 <--
	W: JP, US				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 611384	A1	19940824	EP 1994-908845	19930810 <--
	EP 611384	B1	19991201		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
	JP 07500869	T	19950126	JP 1993-506947	19930810 <--
	AT 187189	T	19991215	AT 1994-908845	19930810 <--
	ES 2139068	T3	20000201	ES 1994-908845	19930810 <--
	US 5710205	A	19980120	US 1996-618391	19960319 <--
	GR 3032590	T3	20000531	GR 2000-400285	20000204 <--

PRAI GB 1992-19140 A 19920910 <--
WO 1993-GB1690 W 19930810 <--
US 1994-240749 B1 19940812 <--

AB A title composition which has an extremely low coefficient of friction in dry sliding contact with metal, without the application of addnl. fluid lubricant, comprises: (A) a fluoropolymer, e.g., tetrafluoroethylene (TFE) homo- and copolymers, (B) a poly(arylene sulfide) and (C) another high aromatic polymer, e.g., a polyimide, polyetherimide, or poly(arylene ether ether ketone). The components are present in the composition as particulate fillers (particles mean size 20-50 .mu.m) in a sintered or melted fluoropolymer matrix and the compns. are prepared by dry blending the components as particulates and, optionally heat-treating the component (C) and then heating the blend to a temperature sufficient to sinter or melt the component (A).

IC ICM C08L027-12
ICS C08L081-02; C08L101-00

ICI C08L027-12, C08L081-02, C08L101-00

CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 40

ST fluoropolymer polyarylene sulfide arom polymer blend; Ryton PTFE polyimide blend wear resistance; friction PTFE Ryton polyimide fiber blend

IT Abrasion-resistant materials
(wear-resistant solid fluoropolymer composition and process)

IT Fluoropolymers
Polythiophenylenes
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(wear-resistant solid fluoropolymer composition and process)

IT Polyimides, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(fiber, wear-resistant solid fluoropolymer composition and process)

IT Polyketones
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyether-, fiber, Victrex 150P; wear-resistant solid fluoropolymer composition and process)

IT Synthetic fibers, polymeric
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyether-polyketones, Victrex 150P; wear-resistant solid fluoropolymer composition and process)

IT Synthetic fibers, polymeric
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyimides, wear-resistant solid fluoropolymer composition and process)

IT Polyethers, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyketone-, fiber, Victrex 150P; wear-resistant solid fluoropolymer composition and process)

IT Plastics, molded
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(thermo-, wear-resistant solid fluoropolymer composition and process)

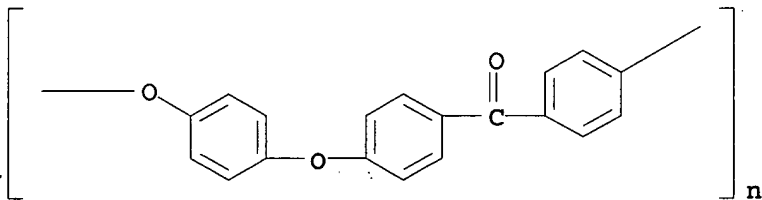
IT 31694-16-3, Victrex 150P
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(fiber; wear-resistant solid fluoropolymer composition and process)

IT 9002-84-0, Fluon G 163 25212-74-2, Poly(thio-1,4-phenylene)
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(wear-resistant solid fluoropolymer composition and process)

IT 31694-16-3, Victrex 150P
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(fiber; wear-resistant solid fluoropolymer composition and process)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 43 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1994:458591 HCAPLUS

DN 121:58591

TI Effect of testing conditions on friction and wear of a polyetheretherketone-based composite

AU Guo, Qiang; Friedrich, Klaus

CS Shanghai Res. Inst. Mater., Shanghai, Peop. Rep. China

SO Synthetic Lubrication (1993), 10(3), 213-24

CODEN: SYLUEB; ISSN: 0265-6582

DT Journal

LA English

AB Friction and wear characteristics of a type of poly(ether ether ketone) (PEEK)-based composite were evaluated under 2 different loading pressures and sliding speeds ($P = 1.0$ MPa, $V = 1.0$ m/s and $P = 2.0$ MPa, $V = 3.3$ m/s). The material was in contact with steel surfaces of 2 different roughnesses ($R_a = 0.15$ μm and $R_a = 0.33$ μm). The interface temperature, coefficient of friction, depth wear rate, and specific wear rate of the polymer composite changed considerably with the PV value and the counterface roughness. The interface temperature increased with increasing PV value, whereas the friction coefficient decreased. The depth wear rate at the higher PV value was much higher than that at the lower PV value. In addition, the rougher counterface resulted in a higher friction coefficient, depth wear rate, and specific wear rate, when the PV value was fixed. The effect of counterface roughness on the specific wear rate at the higher PV value was smaller than that at the lower PV. Further variations in friction and wear with testing conditions are discussed along with the corresponding microscopic observations of the worn polymer surfaces and the polymer transferred counterfaces.

CC 37-5 (Plastics Manufacture and Processing)

ST polyether polyketone composite friction wear; PEEK composite friction wear

IT Carbon fibers, properties

RL: PRP (Properties)

(friction and wear of PEEK composites containing, effect of loading pressure, sliding speed and steel surface roughness on)

IT Polyketones

RL: PRP (Properties)

(polyether-, composites, friction and wear of, effect of loading pressure, sliding speed and steel counterface roughness on)

IT Polyethers, properties

RL: PRP (Properties)

(polyketone-, composites, friction and wear of, effect of loading pressure, sliding speed and steel counterface roughness on)

IT Friction

(wear, of polyimide composites, effect of loading pressure, sliding speed and steel counterface roughness on)

- IT 7440-44-0
RL: PRP (Properties)
(carbon **fibers**, friction and wear of PEEK composites containing, effect of loading pressure, sliding speed and steel surface roughness on)
- IT 31694-16-3, PEEK
RL: PRP (Properties)
(composites, friction and wear of, effect of loading pressure, sliding speed and steel counterface roughness on)
- IT 7782-42-5, Graphite, properties 9002-84-0, Poly(tetrafluoroethylene)
RL: PRP (Properties)
(friction and wear of PEEK composites containing, effect of loading pressure, sliding speed and steel surface roughness on)
- IT 12725-40-5, 100 Cr6
RL: PRP (Properties)
(friction and wear of PEEK composites in contact with, effect of loading pressure, sliding speed and steel surface roughness on)
- L39 ANSWER 44 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1994:246495 HCAPLUS
DN 120:246495
TI Application of scanning acoustic microscopy to polymeric materials
AU Lisy, F.; Hiltner, A.; Baer, E.; Katz, J. L.; Meunier, A.
CS Dep. Macromolecular Sci., Case Western Reserve Univ., Cleveland, OH, 44106, USA
SO Journal of Applied Polymer Science (1994), 52(2), 329-52
CODEN: JAPNAB; ISSN: 0021-8995
DT Journal
LA English
AB Scanning acoustic microscopy (SAM) is now a viable technique for the nondestructive evaluation of various materials. SAM is capable of distinguishing defects and discontinuities and/or the variations in elastic properties on a scale comparable to optical microscopy. The pulse mode utilizes a single narrow acoustic wave that permits surface and internal studies over a range of frequencies from 5 to 200 MHz with resolution down to approx. 20 μm . This technique was applied to image surface features of an opaque sheet-molding compound and to analyze flow patterns of chopped glass **fibers**. The pulse mode was also used to image the internal damage sustained from a high-speed projectile in oriented polypropylene and two carbon **fiber**-reinforced composites, with different matrixes. Most importantly, the pulse mode of the acoustic microscopy is a nondestructive method and the interior of samples that are entirely opaque can be readily studied with this unique instrument. The burst mode is composed of a group of acoustic waves and is capable of operating at higher frequencies than the pulse mode up to several gigahertz. This mode permits resolution down to the micrometer level and is especially useful for investigating surface and subsurface microstructural features. The burst mode was used to determine the distribution of chopped **fibers** in a **PEEK** matrix and carbon black particulates in an adhesive, the orientation of the mineral phase and d. variations in a single osteon from a dog femur, and the orientation of collagen **fibers** in a sheep meniscus. Also, the sensitivity of the burst mode to surface features was used to examine the topog. features in a multilayer composite and a blend of poly(vinyl chloride) (PVC) with poly(ethylene terephthalate) (PET) particulates.
- CC 37-5 (Plastics Manufacture and Processing)
Section cross-reference(s): 13, 26, 36, 45
- ST scanning acoustic microscopy filled polymer; defect plastic scanning acoustic microscopy; topol plastic scanning acoustic microscopy; glass **fiber** plastic scanning acoustic microscopy; polypropylene carbon

- fiber scanning acoustic microscopy; PEEK carbon black scanning acoustic microscopy; multilayer polymer composite scanning acoustic microscopy; PVC PET blend scanning acoustic microscopy; polyester PVC blend scanning acoustic microscopy; biopolymer structure scanning acoustic microscopy; osteon structure scanning acoustic microscopy; collagen structure scanning acoustic microscopy
- IT Carbon **fibers**, properties
RL: PRP (Properties)
(PEEK filled with, topol. features and defects in, scanning acoustic microscopy in study of)
- IT Polycarbonates, properties
RL: PRP (Properties)
(acrylonitrile-styrene copolymer blends, multilayer composites, topol. features and defects in, scanning acoustic microscopy in study of)
- IT Rubber, synthetic
RL: PRP (Properties)
(adhesives, filled with carbon black, topol. features and defects in, scanning acoustic microscopy in study of)
- IT Polymer morphology
(of polymeric materials, scanning acoustic microscopy in study of)
- IT Plastics
RL: PRP (Properties)
(polyester-PVC blends, topol. features and defects in, scanning acoustic microscopy in study of)
- IT Carbon black, properties
RL: PRP (Properties)
(rubber adhesives filled with, topol. features and defects in, scanning acoustic microscopy in study of)
- IT Adhesives
(rubber-based, filled with carbon black, topol. features and defects in, scanning acoustic microscopy in study of)
- IT Collagens, properties
RL: PRP (Properties)
(topol. features and defects in, scanning acoustic microscopy in study of)
- IT Glass **fibers**, properties
RL: PRP (Properties)
(vinyl ester resin filled with, topol. features and defects in, scanning acoustic microscopy in study of)
- IT Microscopy
(acoustic, scanning, of polymeric materials)
- IT Vinyl compounds, polymers
RL: PRP (Properties)
(ester group-containing, polymers, glass **fiber**-filled, topol. features and defects in, scanning acoustic microscopy in study of)
- IT Bone
(osteon, topol. features and defects in, scanning acoustic microscopy in study of)
- IT Polyketones
RL: PRP (Properties)
(polyether-, carbon **fiber**-filled, topol. features and defects in, scanning acoustic microscopy in study of)
- IT Polyethers, properties
RL: PRP (Properties)
(polyketone-, carbon **fiber**-filled, topol. features and defects in, scanning acoustic microscopy in study of)
- IT 25038-59-9, Poly(ethylene terephthalate), properties
RL: PRP (Properties)
(PVC blends, topol. features and defects in, scanning acoustic microscopy in study of)

IT 31694-16-3, PEEK
RL: PRP (Properties)
(carbon fiber-filled, topol. features and defects in, scanning acoustic microscopy-in study of)

IT 7440-44-0
RL: PRP (Properties)
(carbon fibers, PEEK filled with, topol. features and defects in, scanning acoustic microscopy in study of)

IT 9003-54-7, Acrylonitrile-styrene copolymer
RL: PRP (Properties)
(polycarbonate blends, multilayer composites, topol. features and defects in, scanning acoustic microscopy in study of)

IT 9002-86-2, PVC
RL: PRP (Properties)
(polyester blends, topol. features and defects in, scanning acoustic microscopy in study of)

IT 9003-07-0, Polypropylene
RL: PRP (Properties)
(topol. features and defects in, scanning acoustic microscopy in study of)

L39 ANSWER 45 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1993:497430 HCAPLUS

DN 119:97430

TI Flexible multi-ply towpreg, products therefrom, and production therefor

IN Muzzy, John D.; Colton, Jonathan S.; Varughese, Babu

PA Georgia Tech Research Corp., USA

SO PCT Int. Appl., 79 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9220521	A1	19921126	WO 1992-US1870	19920309 <--
	W: CA, JP				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, MC, NL, SE				
	US 5171630	A	19921215	US 1991-700559	19910515 <--
	US 5296064	A	19940322	US 1992-848297	19920309 <--
	EP 589925	A1	19940406	EP 1992-911213	19920309 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, MC, NL, SE				
	JP 06510954	T	19941208	JP 1992-510841	19920309 <--
PRAI	US 1991-700559	A	19910515	<--	
	US 1989-339297	A3	19890417	<--	
	WO 1992-US1870	W	19920309	<--	

AB Improved flexible multi-ply towpreg suitable for weaving, braiding, filament winding, etc., comprises a plurality of towpreg ties (average thickness <100 .mu.m) consisting of reinforcing filaments (glass, carbon, metal, ceramic, or hybrid fibers) and (thermo)plastic resin, copper, low-melting metal, or precursor ceramic matrix. The towpreg is manufactured by spreading the reinforcing filaments, coating (preferably powder spray or electrostatic fluidized bed) and wetting with a liquefied matrix material, cooling with preventing cohesion of the neighboring plies, splitting the coated filaments from each other, and forming a fusion-coated towpreg tape under pressure. Thus, 60% (by volume) of PEEK 150 PF (polyetheretherketone powder) was electrodeposited on Hercules AS 4-6K (C fiber) tow (8-µm diameter filaments), then passed (6.8 m/min) through a tubular oven at 450°, and cooled to give a consolidated towpreg with an estimated stiffness of 216,000 mg/cm. Schematic illustrations

of the product and the manufacturing apparatus are given.

IC ICM B32B005-06
ICS B32B017-04

CC 38-3 (**Plastics** Fabrication and Uses)
Section cross-reference(s): 42

ST carbon **fiber** towpreg tape manuf; PEEK powder graphite
fiber towpreg; electrodeposition PEEK carbon **fiber**
towpreg; polyetheretherketone electrodeposition carbon **fiber**
towpreg

IT Carbon **fibers**, uses
Glass **fibers**, uses
Metallic **fibers**
RL: USES (Uses)
(flexible **fiber**-reinforced towpreg composites from
polyetheretherketone or polyimide and, manufacture of)

IT Polyimides, uses
RL: USES (Uses)
(flexible **fiber**-reinforced towpreg composites from, manufacture
of)

IT Polyamide **fibers**, uses
RL: USES (Uses)
(aramid, flexible **fiber**-reinforced towpreg composites from
polyetheretherketone or polyimide and, manufacture of)

IT Synthetic **fibers**
RL: USES (Uses)
(ceramic, flexible **fiber**-reinforced towpreg composites from
polyetheretherketone or polyimide and, manufacture of)

IT Plastics, reinforced
RL: USES (Uses)
(**fiber**-, flexible towpreg composites, manufacture of)

IT Ceramic materials and wares
RL: USES (Uses)
(**fibers**, flexible **fiber**-reinforced towpreg
composites from polyetheretherketone or polyimide and, manufacture of)

IT Carbon **fibers**, uses
RL: USES (Uses)
(graphite, flexible **fiber**-reinforced towpreg composites from
polyetheretherketone or polyimide and, manufacture of)

IT Textiles
(nonwoven, flexible towpreg composites for, manufacture of)

IT Polyketones
RL: USES (Uses)
(polyether-, flexible **fiber**-reinforced towpreg composites
from, manufacture of)

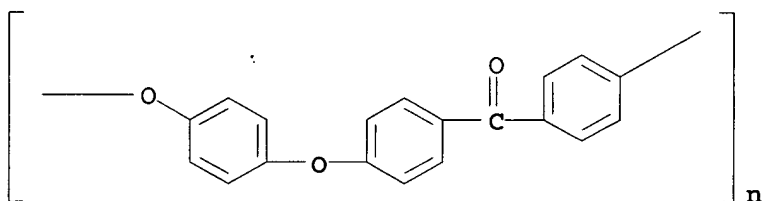
IT Polyethers, uses
RL: USES (Uses)
(polyketone-, flexible **fiber**-reinforced towpreg composites
from, manufacture of)

IT Plastics
RL: USES (Uses)
(thermo-, flexible **fiber**-reinforced towpreg composites from
virgin or recycled, manufacture of)

IT 7440-44-0P
RL: PREP (Preparation)
(carbon **fibers**, flexible **fiber**-reinforced towpreg
composites from polyetheretherketone or polyimide and, manufacture of)

IT 7440-44-0P 7782-42-5P
RL: PREP (Preparation)
(carbon **fibers**, graphite, flexible **fiber**-reinforced
towpreg composites from polyetheretherketone or polyimide and, manufacture

of)
IT 51518-44-6P, LARC-TPI
RL: PREP (Preparation)
(flexible towpreg composite from carbon fiber and, manufacture of)
IT 31694-16-3P, Victrex 150P-F
RL: PREP (Preparation)
(flexible towpreg composite from carbon or glass fiber and,
manufacture of)
IT 31694-16-3P, Victrex 150P-F
RL: PREP (Preparation)
(flexible towpreg composite from carbon or glass fiber and,
manufacture of)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX
NAME)



L39 ANSWER 46 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1992:592800 HCAPLUS

DN 117:192800

TI Novel synthesis of small semicrystalline PEEK particles and carbon fiber composites fabricated via powder prepregging

AU Lyon, K. R.; Texier, A.; Gungor, A.; Davis, R. M.; McGrath, J. E.

CS Natl. Sci. Found. Sci. Technol. Cent., Virginia Polytechnic Inst. and State Univ., Blacksburg, VA, 24061-0212, USA

SO International SAMPE Symposium and Exhibition (1992), 37(Mater.

Work. You 21st Century), 1301-11

CODEN: ISSEEG; ISSN: 0891-0138

DT Journal

LA English

AB Defect-free semicryst. poly(arylene ether ketones) (PAEK) were synthesized in high yield at moderate temps. (e.g. 150°) via ketimine intermediates. Ketimine derivatization of the activated halide prior to polymerization was achieved via mol. sieve-catalyzed reactions with aniline.

The

ketimine derivative activated the halide monomer to nucleophilic aromatic substitution step polymerization and produced an amorphous macromol. of controlled mol. weight The protecting groups could be selectively removed under mildly acidic aqueous conditions after the polymerization yielding the semicryst. PAEK. On transformation from the amorphous ketimine derivative to that of the semicryst. polymer, the polymer precipitated due to its

crystallinity

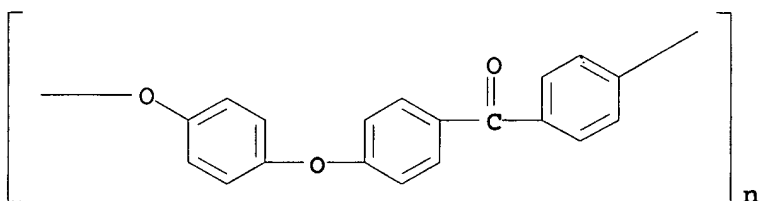
and could be induced to generate small particulate forms. The particle sizes (0.5-5 µm) could be controlled by selecting proper hydrolysis conditions. Carbon fiber composites were fabricated via aqueous powder prepregging using polyamic acids as stabilizers. Mech. properties were essentially equivalent to those of com. available systems. Procedures developed for particle formation and size control were discussed.

CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 35

- ST arom polyether polyketone defect free; polymn ketimine arom polyether polyketone; carbon fiber PEEK composite powder prepregging
- IT Carbon fibers, miscellaneous
RL: MSC (Miscellaneous)
(composites with semicryst. poly(arylene ether ketones), fabrication of, via powder prepregging)
- IT Polymerization
(of hydroquinone with aromatic ketimine, in preparation of semicryst. PEEK)
- IT Dispersing agents
(polyimides, in fabrication of carbon fiber-PEEK composites via powder prepregging, composite mech. properties in relation to)
- IT Polyamic acids
Polyimides, uses
RL: USES (Uses)
(stabilizers, in fabrication of carbon fiber-PEEK composites via powder prepregging, composite mech. properties in relation to)
- IT Polymer morphology
(fracture-surface, of semicryst. PEEK particles prepared via ketimine intermediates)
- IT Polyketones
RL: SPN (Synthetic preparation); PREP (Preparation)
(polyether-, aromatic, preparation of semicryst., via ketimine intermediates,
for fabrication of carbon fiber composites by powder prepregging)
- IT Polyketones
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(polyether-, aromatic, ketimine-containing, preparation and hydrolytic cleavage
reaction of)
- IT Polyethers, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(polyketone-, aromatic, preparation of semicryst., via ketimine intermediates,
for fabrication of carbon fiber composites by powder prepregging)
- IT Polyethers, preparation
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(polyketone-, aromatic, ketimine-containing, preparation and hydrolytic cleavage
reaction of)
- IT 7440-44-0
RL: USES (Uses)
(carbon fibers, composites with semicryst. poly(arylene ether ketones), fabrication of, via powder prepregging)
- IT 109997-75-3P 110018-28-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and cleavage reaction of)
- IT 109997-74-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and polycondensation of, with hydroquinone)
- IT 31694-16-3P 109997-75-3DP, hydrolyzed, ketimine cleavage products 110018-28-5DP, hydrolyzed, ketimine cleavage products
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of semicryst., for fabrication of carbon fiber composites via powder prepregging)
- IT 345-92-6, 4,4'-Difluorobenzophenone
RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction of, with aniline)
 IT 62-53-3, Aniline, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction of, with difluorobenzophenone)
 IT 51518-44-6, LARC-TPI
 RL: USES (Uses)
 (stabilizers, in fabrication of carbon fiber-PEEK composites via powder
 prepregging, composite mech. properties in relation to)
 IT 31694-16-3P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of semicryst., for fabrication of carbon fiber
 composites via powder prepregging)
 RN 31694-16-3 HCAPLUS
 CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX
 NAME)



L39 ANSWER 47 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1992:573071 HCAPLUS

DN 117:173071

TI Fused prepreg production.

IN Hartness, J. Timothy

PA USA

SO Can. Pat. Appl., 29 pp.

CODEN: CPXXEB

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CA 2041515	A1	19911031	CA 1991-2041515	19910430 <--
PRAI	US 1990-516653	A	19900430	<--	

AB Flexible drapeable prepregs (towpregs) containing fused thermoplastic particles are prepared by spraying dispersions of plastic particles on fibers, fusing at high temps, and reconsolidating the spread tow. Thus, carbon fibers (3.5-cm width) were coated with 15 % aqueous slurries of PEEK (particle size 17 .mu.m) at line speed 6.9 m/min, fused at 466°, and reconsolidated to give a towpreg with good flexibility. Molding the towpreg at 415°/200 psi gave a composite with fiber content 57%, voids 0.0%, and tensile strength 11.96 kpsi.

IC ICM C08J005-04

ICS C08J005-24; B29C067-14; B32B005-08; B32B027-04; D06M023-08

CC 38-3 (Plastics Fabrication and Uses)

ST prepreg flexible manuf; carbon fiber prepreg flexible; polyether polyketone prepreg flexible

IT Liquid crystals, polymeric

Polybenzimidazoles

Polyimides, uses

Polythiophenylenes

RL: USES (Uses)
 (in flexible prepreg manufacture)
 IT Carbon **fibers**, uses
 Glass **fibers**, uses
 RL: USES (Uses)
 (in flexible prepregs)
 IT Polyamides, uses
 RL: USES (Uses)
 (aliphatic, in flexible prepreg manufacture)
 IT Polyamide **fibers**, uses
 RL: USES (Uses)
 (aramid, in flexible prepregs)
 IT Plastics, reinforced
 RL: USES (Uses)
 (**fiber**-, prepregs, manufacture of flexible)
 IT Polyketones
 RL: USES (Uses)
 (polyether-, aromatic, in flexible prepreg manufacture)
 IT Polyethers, uses
 RL: USES (Uses)
 (polyketone-, aromatic, in flexible prepreg manufacture)
 IT Polysulfones, uses
 RL: USES (Uses)
 (polyoxyarylene-, in flexible prepreg manufacture)
 IT Polyoxyarylenes
 RL: USES (Uses)
 (polysulfone-, in flexible prepreg manufacture)
 IT Synthetic **fibers**
 RL: USES (Uses)
 (quartz, in flexible prepregs)
 IT Synthetic **fibers**
 RL: USES (Uses)
 (silicon carbide, in flexible prepregs)
 IT 7440-44-0
 RL: USES (Uses)
 (carbon **fibers**, in flexible prepregs)
 IT 409-21-2, Silicon carbide, uses 14808-60-7, Quartz, uses
 RL: USES (Uses)
 (**fiber**, in flexible prepregs)
 IT 31694-16-3, PEEK
 RL: USES (Uses)
 (in flexible prepregs)

L39 ANSWER 48 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 1991:681185 HCAPLUS
 DN 115:281185
 TI Studies on interface structure and crystal texture of poly(ether ether ketone)-carbon **fiber** composite
 AU Wang, Wei; Qi, Zongneng; Jeronimidis, G.
 CS Inst. Chem., Chin. Acad. Sci., Beijing, Peop. Rep. China
 SO Journal of Materials Science (1991), 26(21), 5915-20
 CODEN: JMTSAS; ISSN: 0022-2461
 DT Journal
 LA English
 AB The interface structure of **PEEK**-carbon **fiber** composite and the crystal texture of **PEEK** matrix are studied by SEM after the samples were properly etched by argon plasma. Most of the **PEEK**'s crystals are induced by nucleating carbon **fiber** and then they developed the transcryst. or spherulite shape, depending on the crystallization conditions. Because the volume fraction of the carbon

fiber is 60%, and the space distance between 2 adjacent carbon **fibers** is .apprx.10 .mu.m-20 .mu.m, the crystal size of **PEEK** matrix is mainly controlled by the space distance between adjacent carbon **fibers**, and the crystallization temperature has little effect on it. The

detail

of the oriented crystal growth of the **PEEK** relative to carbon **fiber** was first observed by SEM. The nucleation process of the composite is as follows: the first lamella is formed orientationally in the carbon **fiber** surface in the way that the a crystallog. direction is parallel to the radial direction of carbon **fiber**, the b direction parallel to the tangent line of cross section of carbon **fiber**, and the c direction parallel to the axis of the carbon **fiber**. Therefore, the crystals finally formed are oriented.

CC 37-5 (**Plastics** Manufacture and Processing)

Section cross-reference(s): 36

ST interface structure **PEEK** carbon **fiber**; crystal texture **PEEK** carbon **fiber**; cryst morphol **PEEK** carbon **fiber**

IT Carbon **fibers**, properties

RL: PRP (Properties)

(**PEEK** composites, interface structure and matrix crystal texture of, SEM study of)

IT Spherulites

(growth of, of **PEEK**, in carbon **fiber** composites)

IT Crystal nucleation

(of **PEEK**, in carbon **fiber** composites, mechanism of)

IT Polymer morphology

(crystalline, spherulitic, of **PEEK**-carbon **fiber** composites, SEM study of)

IT Polymer morphology

(interfacial, of **PEEK**-carbon **fiber** composites, SEM study of)

IT Polyketones

RL: PRP (Properties)

(polyether-, aromatic, crystal texture of neat and interface structure in carbon **fiber** composites, SEM study of)

IT Polyethers, properties

RL: PRP (Properties)

(polyketone-, aromatic, crystal texture of neat and interface structure in carbon **fiber** composites, SEM study of)

IT Crystallization

(spherulitic, of **PEEK**, in carbon **fiber** composites)

IT 7440-44-0

RL: USES (Uses)

(carbon **fibers**, **PEEK** composites, interface structure and matrix crystal texture of, SEM study of)

IT 31694-16-3, **PEEK**

RL: USES (Uses)

(crystal texture of neat and interface structure in carbon **fiber** composites, SEM study of)

L39 ANSWER 49 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1991:585023 HCAPLUS

DN 115:185023

TI Extrusion sheets and electric insulation boards

IN Tanimoto, Kenichi; Ookubo, Makoto; Kamy, Kenji; Okumura, Shinji; Nakayama, Yasuki

PA Unitika Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 4 pp.

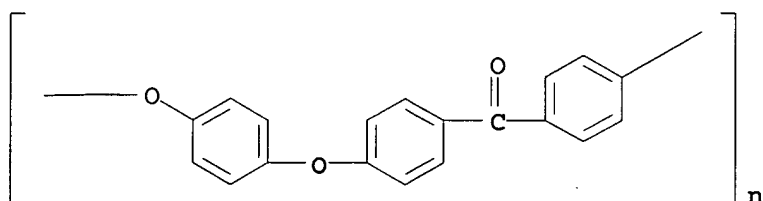
CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 03151220	A	19910627	JP 1989-290452	19891108 <--
PRAI	JP 1989-290452		19891108	<--	
AB	<p>The smooth-surfaced title sheets, with low difference between the phys. properties in the machine direction and those in the transverse direction, comprise aromatic polyether ketones 100, fibrous reinforcement materials 2-50, and inorg. compds. (average particle diameter .ltoreq.50 .mu.m) 5-50 parts, and are useful for forming sheets for elec. insulation boards by hot pressing. Thus, Victrex PEEK 100, glass fibers (diameter 15 .mu.m) 25, and mica (average particle diameter 40 .mu.m) were melt kneaded at 390°, pelletized, and extruded at 400°, and pressed at 250° and 40 kg/cm2 to give an elec. insulation board (degree of crystallization 30%) with longitudinal (transverse) bending strength 2300 (1800) kg/cm2, bending modulus 90,000 (75,000) kg/cm2, heat-distortion temperature 290°, soldering heat resistance (280°) 50 s, and good surface smoothness, vs. 1400 (1300), 38,000 (37,000), 160, 10, and good, resp., for a board prepared without mica and glass fibers.</p>				
IC	ICM B29C047-00				
	ICS C08K007-02; C08L071-10; H01B003-30				
ICI	B29K071-00, B29K105-06				
CC	38-3 (Plastics Fabrication and Uses)				
	Section cross-reference(s): 76				
ST	reinforced filled polyether polyketone; glass fiber reinforced polyether polyketone; mica filled polyether polyketone; elec insulation board polyether polyketone				
IT	Mica-group minerals, uses and miscellaneous				
	RL: USES (Uses)				
	(aromatic polyester-polyketones containing glass fibers and, for elec. insulation boards)				
IT	Glass fibers , uses and miscellaneous				
	RL: USES (Uses)				
	(aromatic polyether-polyketones containing mica and, for elec. insulation boards)				
IT	Electric insulators and Dielectrics				
	(boards, polyether-polyketones, containing glass fibers and mica)				
IT	Polyketones				
	RL: USES (Uses)				
	(polyether-, aromatic, extrusion sheets, containing glass fibers and mica, for elec. insulation boards)				
IT	Polyethers, uses and miscellaneous				
	RL: USES (Uses)				
	(polyketone-, aromatic, extrusion sheets, containing glass fibers and mica, for elec. insulation boards)				
IT	31694-16-3, Victrex PEEK				
	RL: USES (Uses)				
	(extrusion sheets, containing glass fibers and mica, for elec. insulation boards)				
IT	31694-16-3, Victrex PEEK				
	RL: USES (Uses)				
	(extrusion sheets, containing glass fibers and mica, for elec. insulation boards)				
RN	31694-16-3 HCAPLUS				
CN	Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)				



L39 ANSWER 50 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1991:537345 HCAPLUS

DN 115:137345

TI Effect of carbon **fibers** length on the low-temperature thermal conductivity of a thermoplastic composite

AU Nysten, B.; Jonas, A.; Issi, J. P.

CS Unite Phys. Chim. Phys. Mater., Univ. Cathol. Louvain, Louvain-la-Neuve, B-1348, Belg.

SO Thermal Conductivity (1990), 21, 647-60

CODEN: THCOD9; ISSN: 0163-9005

DT Journal

LA English

AB The temperature (T) variation of the thermal conductivity of a thermoplastic composite

was measured at $2 < T < 300$ K. The samples were a high temperature thermoplastic matrix (PEEK) filled with constant volume fraction of 10% of pitch-derived carbon **fibers** whose average lengths ranged from 30 μm to 5 mm. The low-temperature ($T < 20$ K) thermal conductivity which had the temperature dependence of a semicryst.

polymer was

dominated by the matrix. At higher temps., the conductivity increased with **fiber** length and was tentatively modeled by contact resistance between the **fibers** and the polymer.

CC 37-5 (Plastics Manufacture and Processing)

Section cross-reference(s): 69

ST carbon **fiber** PEEK thermal cond; **fiber** length composite thermal cond

IT Thermal conductivity and conduction

(low-temperature, of carbon **fiber**-PEEK composites, **fiber** length effect on)

IT Crystallinity

(of PEEK, low-temperature thermal conductivity of its composites with carbon **fibers** with various lengths in relation to)

IT Carbon **fibers**, properties

RL: PRP (Properties)

(pitch-based, PEEK composites, low-temperature thermal conductivity of, **fiber** length effect on)

IT Polyketones

RL: PRP (Properties)

(polyether-, aromatic, carbon **fiber** composites, low-temperature thermal conductivity of, **fiber** length effect on)

IT Polyethers, properties

RL: PRP (Properties)

(polyketone-, aromatic, carbon **fiber** composites, low-temperature thermal conductivity of, **fiber** length effect on)

IT 31694-16-3, PEEK

RL: USES (Uses)

(carbon **fiber** composites, low-temperature thermal conductivity of, **fiber** length effect on)

IT 7440-44-0

RL: USES (Uses)

(carbon **fibers**, pitch-based, PEEK composites, low-temperature thermal conductivity of, **fiber** length effect on)

L39 ANSWER 51 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1990:632936 HCAPLUS

DN 113:232936

TI Films, solid **fibers**, microporous film membranes, and microporous hollow-**fiber** membranes from PEEK solutions in high boiling point polar organic solvents

IN Chau, Chieh Chun; Wessling, Ritchie A.

PA Dow Chemical Co., USA

SO U.S., 12 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4957817	A	19900918	US 1988-276006	19881125 <--
PRAI	US 1988-276006		19881125 <--		

AB Title products are prepared from solns. in organic polar solvents with b.p. 141-380°. Thus, casting a mixture of 1 part Victrex **PEEK** 380P and 6 parts benzophenone at 300° on a glass plate at 100-150°, cooling by air blower, separating the film from the plate, dipping the film 1 h in MeOH to remove the solvent, rinsing the dipped film with water, and drying gave a membrane with pore diameter on the glass plate side 1-4 µm and the other side 0.1-0.3 µm, that exhibited water permeability 0.12 mL/cm²-min-atm (3.6 mil thick) and retained 0.091 **.mu.m** polystyrene **particles** in 15% polystyrene latex under 138 kP pressure.

IC ICM C08J009-28

INCL 428436000

CC 38-2 (**Plastics** Fabrication and Uses)

Section cross-reference(s): 40

ST PEEK microporous semipermeable membrane prepn; benzophenone soln PEEK microporous membrane; **fiber** hollow microporous membrane PEEKIT Synthetic **fibers**, polymeric

RL: PREP (Preparation)

(PEEK, preparation of, from solns. in high-boiling polar solvents)

IT Solvents

(high-boiling, polar, PEEK solns. in, for preparation of membranes and **fibers**)

IT Membranes

(microporous, of PEEK, preparation of, from solns. in high-boiling organic polar solvents)

IT Membranes

(microporous, hollow-**fiber**, of PEEK, preparation of, from solns. in high-boiling organic polar solvents)

IT Polyketones

RL: PREP (Preparation)

(polyether-, microporous and nonporous membranes and **fibers**, preparation of, from solns. in high-boiling organic polar solvents)

IT Polyethers, uses and miscellaneous

RL: PREP (Preparation)

(polyketone-, microporous and nonporous membranes and **fibers**, preparation of, from solns. in high-boiling organic polar solvents)

IT 31694-16-3P, Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene)

RL: PREP (Preparation)

(microporous and nonporous membranes and **fibers**, preparation of, from solns. in high-boiling organic polar solvents)

IT 90-13-1 90-43-7, [1,1'-Biphenyl]-2-ol 93-04-9 93-99-2, Phenyl benzoate 119-61-9, Benzophenone, uses and miscellaneous 120-47-8, Ethyl 4-hydroxybenzoate 127-63-9, Diphenylsulfone 131-11-3 771-61-9, Pentafluorophenol 6837-24-7, N-Cyclohexyl-2-pyrrolidone

RL: USES (Uses)

(solvents, PEEK solns. in, for preparation of **fibers** and membranes)

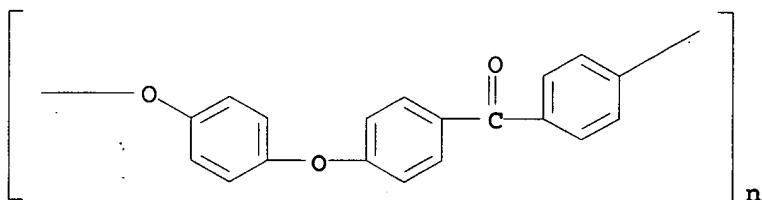
IT 31694-16-3P, Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene)

RL: PREP (Preparation)

(microporous and nonporous membranes and **fibers**, preparation of, from solns. in high-boiling organic polar solvents)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 52 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1990:593149 HCAPLUS

DN 113:193149

TI PEEK composites for wear-resistant automobile manual transmission shift fork claws

IN Kato, Shinji; Fuwa, Yoshio

PA Toyota Motor Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 02190672	A	19900726	JP 1989-9161	19890118 <--
PRAI	JP 1989-9161		19890118 <--		

AB The claws, having fiber dispersion rate 5-35%, comprise mainly PEEK and fibers having average diameter 5-20 μm and length 30-500 μm , selected from glass, carbon, Kevlar, and steel fibers. A claw prepared from PEEK and glass fibers (dispersion rate 21%) had coefficient of friction 0.010 and wear 25 μm under 4800 rpm, 120°, and 100 kg loading for 30,000 cycles (rotation for 1 s and stop for 1.5 s).

IC ICM F16H063-32

ICS C08L071-10

CC 38-3 (Plastics Fabrication and Uses)

ST wear resistance glass fiber PEEK composite; automobile manual transmission shift claw

IT Crystal whiskers

Carbon **fibers**, uses and miscellaneous

Glass **fibers**, uses and miscellaneous

RL: USES (Uses)

(PEEK containing, for automobile manual transmission shift fork claws, wear-resistant)

IT Polyimides, uses and miscellaneous

RL: USES (Uses)

(**fiber**-containing PEEK blends with, wear-resistant, for automobile shift fork claws)

IT Abrasion-resistant materials

(**fiber**-reinforced PEEK, for automobile transmission shift fork claws)

IT Polyamide **fibers**, uses and miscellaneous

RL: USES (Uses)

(aramid, PEEK containing, for automobile manual transmission shift fork claws, wear-resistant)

IT Transmissions

(automotive, manual, shift fork claws for, wear-resistant **fiber**-reinforced PEEK for)

IT Metallic **fibers**

RL: USES (Uses)

(brass, PEEK containing, for automobile manual transmission shift fork claws, wear-resistant)

IT Metallic **fibers**

RL: USES (Uses)

(steel, PEEK containing, for automobile manual transmission shift fork claws, wear-resistant)

IT 7440-44-0

RL: USES (Uses)

(carbon **fibers**, PEEK containing, for automobile manual transmission shift fork claws, wear-resistant)

IT 31694-16-3, PEEK

RL: USES (Uses)

(**fiber**-containing, wear-resistant, for automobile shift fork claws)

L39 ANSWER 53 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1990:479635 HCAPLUS

DN 113:79635

TI Processing, microstructure, and failure behavior in short-**fiber**-reinforced poly(ether ether ketone) composites

AU Wu, Gwo Mei; Schultz, J. M.

CS Coll. Eng., Univ. Delaware, Newark, DE, 19716, USA

SO Polymer Composites (1990), 11(2), 126-32

CODEN: PCOMDI; ISSN: 0272-8397

DT Journal

LA English

AB Short-glass-**fiber**-reinforced PEEK composites were prepared in a specially designed mold. Both compression- and extrusion-molded plaques were obtained under the same thermal history. The **fiber** length distribution ($\leq 600 \mu\text{m}$), volume fraction (20%), and orientation were characterized. The **fibers** showed an in-plane random orientation in the compression-molded plaques, but they exhibited a 3-layer **fiber** orientation well known for injection moldings in the extrusion-molded composites. Static compact tension specimens and electron microscopy were used to investigate the failure behavior. Crack initiation was the dominant failure energy absorption process in brittle fracture, whereas crack propagation was dominant in ductile failure. The extruded composites were mech. characterized in two orthogonal directions

(T- and L-type). The anisotropy factor was 1.2.

CC 37-5 (**Plastics** Manufacture and Processing)

ST **fiber** reinforced PEEK processing property; polyether polyketone glass reinforced

IT Glass **fibers**, uses and miscellaneous

RL: USES (Uses)

(PEEK reinforced with, processing, microstructure and failure behavior of)

IT Extrusion of plastics and rubbers

(of glass **fiber**-reinforced PEEK composites, microstructure and failure behavior in relation to)

IT Molding of plastics and rubbers

(compression, of glass **fiber**-reinforced PEEK composites, microstructure and failure behavior in relation to)

IT Polymer morphology

(fracture-surface, of glass **fiber**-reinforced PEEK composites)

IT Polyketones

RL: PRP (Properties)

(polyether-, aromatic, glass **fiber**-reinforced, processing, microstructure and failure behavior of)

IT Polyethers, properties

RL: PRP (Properties)

(polyketone-, aromatic, glass **fiber**-reinforced, processing, microstructure and failure behavior of)

IT 31694-16-3, PEEK

RL: USES (Uses)

(glass **fiber**-reinforced, processing, microstructure and failure behavior of)

L39 ANSWER 54 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1989:634633 HCAPLUS

DN 111:234633

TI **Fiber**-reinforced thermoplastic laminates

IN Cogswell, Frederic Neil; Meakin, Peter James

PA Imperial Chemical Industries PLC, UK

SO Eur. Pat. Appl., 10 pp.

CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 320155	A2	19890614	EP 1988-311229	19881128 <--
	EP 320155	A3	19920212		
	R: BE, CH, DE, ES, FR, GB, IT, LI, NL, SE				
	US 5066536	A	19911119	US 1988-280355	19881206 <--
	AU 8826767	A	19890615	AU 1988-26767	19881209 <--
	AU 609550	B2	19910502		
	BR 8806508	A	19890822	BR 1988-6508	19881209 <--
	CA 1313345	C	19930202	CA 1988-585674	19881212 <--
PRAI	GB 1987-28887	A	19871210	<--	

AB Laminates comprise a **fiber**-reinforced polymer composite having **fiber** content $\geq 50\%$ and **fiber** length > 3 mm and a layer selected from a crystalline polymer having m.p. $\geq 10^\circ$ below the 1st layer polymer, an amorphous polymer having glass transition temperature (T_g) $\geq 10^\circ$ below the m.p. of the 1st layer polymer, and an amorphous polymer which may be crystallizable in a subsequent annealing process. The 2nd layer is applied onto the 1st layer at a temperature above the m.p. of the 1st layer polymer, and the **fiber**-free layer is

useful for bonding the **fiber**-reinforced composite to other materials. Four 125- μ m-thick Vitrex PEEK (Tg 143°) prepregs containing 68% uniaxially aligned carbon **fibers** were assembled so that the **fibers** in 1 layer were oriented 90° to the **fibers** in the neighboring layer, and the assembly was laminated at 400°/0.7 MPa with a 50- μ m polyether-polysulfone (PES, Tg 220°) film. Pressing 2 pieces of this laminate together at 300°/10.13 bar with the PES surfaces in contact produced another laminate with good adhesion.

- IC ICM B29C067-14
ICS B32B027-00; C08J005-04
- CC 38-3 (**Plastics** Fabrication and Uses)
- ST polyether polysulfone laminate; carbon **fiber** reinforced PEEK laminate; polyether polyketone carbon reinforced laminate; adhesive polyether polyketone reinforced laminate
- IT Adhesives
(polyether polysulfones or polyether polyimides, for **fiber**-reinforced thermoplastics, for composites)
- IT Carbon **fibers**, uses and miscellaneous
RL: USES (Uses)
(thermoplastics reinforced by, adhesive layers for, for composites)
- IT Polyimides, uses and miscellaneous
Polysulfones, uses and miscellaneous
RL: USES (Uses)
(polyether-, adhesive layers, for **fiber**-reinforced prepregs, for composites)
- IT Polyethers, uses and miscellaneous
RL: USES (Uses)
(polyimide-, adhesive layers, for **fiber**-reinforced prepregs, for composites)
- IT Polyethers, uses and miscellaneous
RL: USES (Uses)
(polysulfone-, adhesive layers, for **fiber**-reinforced prepregs, for composites)
- IT 61128-24-3
RL: USES (Uses)
(adhesive layers, Ultem 1000, for **fiber**-reinforced prepregs, for composites)
- IT 71148-53-3
RL: USES (Uses)
(adhesive layers, for **fiber**-reinforced prepregs, for composites)
- IT 31694-16-3, PEEK
RL: USES (Uses)
(carbon **fiber**-reinforced, adhesive layers for, for laminates)
- IT 7440-44-0
RL: USES (Uses)
(carbon **fibers**, thermoplastics reinforced by, adhesive layers for, for composites)
- IT 25667-42-9
RL: USES (Uses)
(prepregs, for composites, adhesive layers for)
- L39 ANSWER 55 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
- AN 1989:214261 HCAPLUS
- DN 110:214261
- TI Creep- and wear-resistant PTFE compositions without loss of excellent characteristics peculiar to PTFE
- IN Umemoto, Noboru
- PA NTN-Rulon Industries Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 63286458	A	19881124	JP 1987-121645	19870518 <--
PRAI	JP 1987-121645		19870518 <--		

AB Title compns., useful for sliding and sealing parts, contain PTFE, heat-resistant **fiber** powders, and aromatic poly(ether ketones). Thus, TFM 1700 (PTFE) 70, MF- β (glass **fiber**, average diameter 3 . mu.m) 15, and finely powdered Victrex PEEK 150P [aromatic poly(ether ketone), average particle diameter 15 .mu.m] 15 parts were dry mixed, premolded at 450 kg/cm², and heated at 360° for 3 h to prepare a calcined molding. The test pieces therefrom showed compressive creep deformation (140 kg/cm² load, 24 h) 1.2 (transverse) and 0.8% (longitudinal), frictional coefficient 0.21, wear coefficient 5.2 + 10-10 cm³/kg-m, and tensile strength 150 kg/cm², and tensile elongation 222%, compared with 3.7 and 1.6%, 0.35, 154 + 10-10 cm³/kg-m, 134 kg/cm², and 215%, resp., for controls containing 80 parts TFM 1700 and 20 parts TISMO-D 101.

IC ICM C08L027-12
ICS C08L029-00

CC 37-6 (Plastics Manufacture and Processing)

ST creep resistance PTFE compn; wear resistance PTFE compn; heat resistance glass **fiber** reinforcer; polyether ketone binder PTFE **fiber**

IT Abrasion-resistant materials
(heat-resistant powdered **fiber**-reinforced PTFE containing aromatic poly(ether ketones), creep-resistant)

IT Glass **fibers**, uses and miscellaneous
RL: USES (Uses)
(heat-resistant, PTFE reinforced with, containing aromatic poly(ether ketones), creep- and wear-resistant, MF- β)

IT Polyketones
RL: USES (Uses)
(polyether-, aromatic, binders, for PTFE reinforced with heat-resistant powdered **fibers**, for creep- and wear-resistance)

IT Polyethers, uses and miscellaneous
RL: USES (Uses)
(polyketone-, aromatic, binders, for PTFE reinforced with heat-resistant powdered **fibers**, for creep- and wear-resistance)

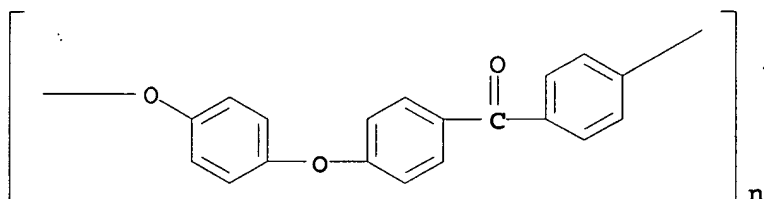
IT Synthetic **fibers**
RL: USES (Uses)
(potassium titanate, aminosilane-coated, TISMO-D 101, heat-resistant, PTFE reinforced by, containing aromatic poly(ether ketones), creep- and wear-resistant)

IT 31694-16-3, Victrex PEEK 150P
RL: USES (Uses)
(binders, for PTFE reinforced with heat-resistant powdered **fibers**, for creep- and wear resistance)

IT 9002-84-0, PTFE
RL: USES (Uses)
(reinforced with powdered heat-resistant **fibers**, containing aromatic poly(ether ketones), creep- and wear-resistant)

IT 104381-87-5, Hostaflon TFM 1700
RL: USES (Uses)
(reinforced with powdered heat-resistant **fibers**, containing aromatic

poly(ether ketones, creep and wear-resistant)
 IT 31694-16-3, Victrex PEEK 150P
 RL: USES (Uses)
 (binders, for PTFE reinforced with heat-resistant powdered **fibers**
 , for creep- and wear resistance)
 RN 31694-16-3 HCAPLUS
 CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX
 NAME)



L39 ANSWER 56 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1988:571647 HCAPLUS

DN 109:171647

TI Polyether-polyketone compositions with good plating properties

IN Tsutsumi, Toshihiko; Goto, Yoshihisa; Takahashi, Toshiaki; Ochi, Hiroyasu

PA Mitsui Toatsu Chemicals, Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 63118363	A	19880523	JP 1986-48226	19860307 <--
PRAI	JP 1986-48226		19860307	<--	

AB Comps. having good heat resistance and mech. strength, useful for elec. and automobile parts, etc., are prepared from aromatic polyether-polyketones 100, K titanate **fibers** 2-60, and alkaline earth metal carbonates (e.g., Ca or Ca Mg carbonate) 2-30 parts. A mixture of Victrex PEEK 150P 100, Tismo D 20, and CaCO₃ 5 parts was extruded to give a sheet which had tensile strength 1020 kg/cm² and, after chemical and elec. plating with a 30- μ m Cu layer, had a good appearance, surface roughness 0.04 μ m, and adhesion of Cu 1.3 kg/cm², vs. 1310, bad, 0.17, and 0.4, resp., with glass **fibers** instead of Tismo D.

IC ICM C08L071-00

ICS C08K003-24; C08K003-26

CC 37-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 42

ST potassium titanate **fiber** polyether polyketone; calcium carbonate polyether polyketone; metalization polyether polyketone; copper plating polyether polyketone; adhesion copper polyether polyketone

IT Coating process

(electroless, of copper, on polyether-polyketone containing **fibers** and fillers)

IT Polyketones

RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (polyether-, aromatic, moldings, containing **fibers** and fillers, for metalization)

IT Polyethers, uses and miscellaneous

RL: PEP (Physical, engineering or chemical process); PROC (Process)

(polyketone-, aromatic, moldings, containing **fibers** and fillers, for metalization)

IT Synthetic **fibers**
RL: USES (Uses)
(potassium titanate, polyether-polyketones containing, for metalization)

IT 7440-50-8, Copper, uses and miscellaneous
RL: USES (Uses)
(coating by, of polyether-polyketones containing **fibers** and fillers)

IT 471-34-1, Calcium carbonate, uses and miscellaneous 7000-29-5
RL: USES (Uses)
(fillers, polyether-polyketones containing, for metalization)

IT 31694-16-3, Victrex PEEK 150P
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(moldings, containing **fibers** and fillers, for metalization)

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